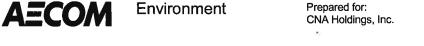


Environment

Auriga Spartanburg **DMT** Area Direct Push Investigation Chloroform March 2013





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A Analytical Data

1.0 Introduction and Summary of Work Completed

This report provides a summary of the DMT area investigation activities, the results of the work, and recommendations for additional activity.

A work plan for investigation of the remaining chloroform plume at the former DMT area was submitted to the South Carolina Department of Health and Environmental Control (DHEC) on March 8, 2012. This plan was approved with minor comments in a letter from DHEC dated June 11, 2012. A revised plan was submitted on July 12, 2012, and was approved by DHEC in your letter dated August 6, 2012, and in an e-mail dated August 20, 2012. The direct push activities described in the plan were completed between September 4 and September 25, 2012. Based on the preliminary results, a request was submitted for the addition of four more direct push locations, plus collection of a sample from well MW-52. The additional work was approved in a letter from DHEC dated November 29, 2012. Well MW-52 was sampled on December 5, 2012, and the additional direct push locations were completed between December 10 and December 13, 2012. The locations of direct push and monitoring wells included in this investigation are presented on Figure 1.

As described in the work plan, groundwater samples were collected at two depths from each direct push location whenever possible. One sample was collected when groundwater was first encountered. When the direct push technology (DPT) could advance at least 10 feet beyond the first sample depth, a second sample was collected at refusal depth. Select direct push locations were also sampled more frequently to assist in establishing the vertical distribution of treatment effectiveness. The direct push groundwater samples were analyzed for volatile organic compounds (VOCs), including chloroform.

The routine December groundwater monitoring event for the DMT area was completed between December 5 and 6, 2012. Chloroform results associated with that event are also included in this report. The December 2012 monitoring report will be submitted by March 29, 2013. Analytical reports and additional review of the event are included in that report.

The direct push investigation was also supplemented to include further investigation of other chlorinated compounds and 1,4-dioxane detected at well MW-99. The details of this supplemental work were presented in letters from AECOM dated April 11, 2012 and April 27, 2012. The analytical results are included in this report. However, the purpose of this document is to assess the remaining chloroform conditions and propose further remediation plans. A work plan under the Voluntary Cleanup Contract (VCC) is also being developed at this time. Assessment and recommendations for 1,4-dioxane and other chlorinated compounds will be included in that document.

2.0 Results

Samples from direct push locations were identified as D12-XX-YY. The value of XX ranges from 01 to 30 and identifies the specific direct push location. The value of YY indicates the depth of sample collection below ground surface.

A summary of direct push analytical results is presented in Table 1. Only those parameters detected in at least one sample are included in Table 1. A complete copy of the analytical data report is included in Appendix A. A summary of analytical results associated with permanent wells is presented in Table 2. Permanent monitoring well results are also presented in the routine monitoring report submitted to DHEC each March, and further discussion of these results will be included in that document.

Chloroform results for samples collected from groundwater in saprolite are presented on Figure 2. Chloroform results for samples collected from direct push refusal and wells screened into bedrock are presented on Figure 3. Data for monitoring well locations represent the results of the December 2012 monitoring event.

2.1 Definition of Areas for Additional Remediation

Analytical results presented on Figures 2 and 3 show that the areas of remaining chloroform are consistent between saprolite and bedrock. Two areas of chloroform were identified. The first area is directly downgradient of the formerly identified quality control laboratory, which was the focus of historic remediation efforts. The second area is further to the east in the vicinity of Outfall 003.

Prior investigation into the origin of the plume determined that the former quality control (QC) laboratory used chloroform as a solvent. Injection activities significantly reduced the size and mass of the chloroform plume, but remaining concentrations have been observed to the east and west, outside of the effective treatment area, as well as downgradient of the treatment area.

Results from direct push locations 12, 13, and 15, combined with monitoring wells MW-105 and MW-106, provide improved definition of the areas beyond the existing treatment radius. Direct push location 15 is also upgradient of historic injection. The nearest injection to location 15 occurred at well EW-37 which is located cross-gradient from location 15 and is 110 feet away. Direct push location 10 is also near the former QC laboratory and reported detections of chloroform at concentrations of 1.17 and 1.46 milligrams per liter (mg/L).

The goal of this investigation was to define the extent of previously identified chloroform remaining outside of the effective treatment area. The detections at locations 12, 13, and 15 were consistent with expectations. The detection at location 10 is also upgradient of the nearest prior injection and in an area previously anticipated as likely not requiring treatment. Injection upgradient of location 10 occurred at well EW-49. However, well EW-49 is over 180 feet away from location 10. Other surrounding locations (8, 9, and 11 to the west, and 14 and 16 to the east) provide delineation on the remaining extents of the plume in this area. Based on these results, the area for further treatment is defined as shown on Figure 3.

The shallow sample from location 15 in this area reported a chloroform detection of 10.6 mg/L. Location 15 is upgradient of monitoring well RW-48. Prior to remediation, RW-48 reported a

concentration of 15 mg/L (September 18, 2012). As mentioned previously, nearby location 10 also reported detections of chloroform slightly upgradient of the prior treatment area. Therefore, locations 10 and 15 define a continuous section of a residual upgradient plume.

Additional detections of chloroform were historically identified to the east, primarily along an area running from wells MW-103 and MW-107 to wells EW-41 and EW-31, therefore, injection activities were completed in wells along this area. Direct push locations in this area were planned with the goal of establishing the chloroform boundary. Samples collected in this area included detections of chloroform exceeding the Maximum Contaminant Level (MCL) and up to 4.15 mg/L. Based on these results, four additional direct push locations (locations 27 – 30) and supplemental sampling of well MW-52 were added to the investigation.

The results of the supplemental samples provided delineation to the south and east, but confirmed that an additional plume area requiring treatment exists west-northwest of Outfall 003. This additional remediation area is also shown on Figure 4. In addition to the two areas described above, a detection of 0.118 mg/L chloroform was noted in one sample from location 20. Multiple other samples from adjacent locations are non-detect, suggesting that the chloroform at this location is isolated. A third small area for further remediation was included on Figure 4 to address this detection.

2.2 Assessment of Remediation Effectiveness

In addition to assessment of areas for additional injection, several elements of the direct push investigation were planned to provide additional evaluation of the prior remediation effectiveness.

2.2.1 Vertical Distribution of Effectiveness

Each direct push location was scheduled for collection of at least two samples unless the distance between the groundwater surface and refusal was inadequate for more than one sample. Several locations were also selected for additional sample collection. Three samples were collected from locations 12, 15, and 22. The samples at each location were reviewed for assessment of vertical distribution of effective remediation.

At four sample locations, only one sample was collected. Locations 2, 5, 20, and 21 were excluded from analysis for this reason. As discussed previously, multiple direct push locations defined areas outside of the prior remediation. Locations 4, 10, 12, 13, 15, 24, 25, 26, 27, and 28 were identified as outside of the treatment area. Therefore, these locations are not meaningful for assessment of vertical treatment distribution. Locations 12 and 15 had been selected for additional sampling prior to their identification as needed further treatment. Lastly, locations 1, 3, 7, 29, and 30 do not require remediation but are interpreted as beyond the original plume limits. Therefore, these locations are also not useful for assessment of vertical distribution.

Remaining locations 6, 8, 9, 11, 14, 16, 17, 18, 19, 22, and 23 were identified as representative of the former plume and within the treatment area. Both samples at each of these locations were either non-detect (<0.005 mg/L) or below the MCL of 0.080 mg/L. The three samples collected from location 22 were each non-detect (<0.005 mg/L).

The samples collected within treated locations support the conclusion that effective vertical distribution of treatment is achieved within the areas of injection. Multiple direct push investigations have been completed, and the data suggest the difference between shallow and refusal depth samples are approximately representative of saprolite and bedrock data. However, additional investigation with permanent wells installed into bedrock is needed to complete this evaluation. Future activities will

include the installation of additional monitoring wells in saprolite and bedrock, including well pairs for further comparison of conditions at various depths.

2.2.2 Horizontal Range of Effectiveness

As described in the July 12, 2012 report, remediation of chloroform has been observed in wells as far as 150 feet downgradient of injection. The results of the direct push investigation supported the observations of that report, but also identified limitations to the interpretation.

Samples collected from direct push locations directly downgradient of former injection wells were found to either be non-detect for chloroform (<0.005 mg/L) or to contain concentrations below the MCL (0.080 mg/L) and significantly lower than historically noted levels. At direct push locations located greater than 100 feet downgradient, higher concentrations of chloroform were observed. These areas, which need further remediation, were typically in the vicinity of wells previously identified as outside of the treatment area of influence.

Direct push locations D12-10 and D12-20 are close to prior injection wells and produced samples containing chloroform concentrations above the MCL.

At location 10, the concentrations of chloroform were 1.17 mg/L at 29 feet and 1.46 mg/L at 58 feet (refusal depth). This location is near former injection well EW-50, which indicated concentrations as high as 8 mg/L in 2003 and 19 mg/L in the 1990s. The post-remediation concentrations in samples from EW-50 have consistently remained non-detect (<0.005 mg/L).

Only one sample was collected from location 20, located adjacent to former injection well EW-53. The chloroform concentration at location 20 was 0.118 mg/L at 59 feet (refusal depth). In the early 2000s, chloroform concentrations of 3 to 4 mg/L were reported at EW-53 and were as high as 11 mg/L in the 1990s; however, since 2008, the chloroform concentration at EW-53 has been below the MCL, typically non-detect (<0.005 mg/L).

Location 20 was also part of a nest of direct push locations. As described in the July 2012 plan, locations 17 through 22 were grouped together to demonstrate the distribution of chloroform over a relatively small area. A detection of 0.00828 mg/L (below the 0.080 mg/L MCL) was noted in the 63-foot depth sample from location 19. The 80-foot depth sample from location 19 was non-detect, and the data from the remaining four locations in this cluster were also non-detect (<0.005 mg/L). These results indicate that the injection effectiveness is frequently found to extend a significant distance (up to or beyond 100 feet) from the point of injection.

For both cases with chloroform presence near injection points, the detections were somewhat cross-gradient to the injection rather than directly downgradient. This demonstrates a limitation of the prior injection strategy based on use of existing wells, therefore, future injection plans will utilize direct push temporary wells. Temporary wells for injection will improve distribution across the target area and will also allow for targeted placement of injection upgradient of the target areas.

2.2.3 Persistence of Remediation Effectiveness

Ongoing monitoring has demonstrated that once effective treatment is achieved, the effectiveness persists for years and, so far, continues to remain effective through the 2012 monitoring data. A common remediation model includes destruction of aqueous contaminants followed by desorption of additional mass from the surrounding matrix and/or migration of contaminated water from within the matrix. In either case, "rebound" of concentrations is common. Limited rebound was noted at a few wells shortly after the initial injection, but after the second injection event, concentrations have

remained non-detect (<0.005 mg/L) at most locations. As described above, location 15 is slightly upgradient of the treatment area, and a chloroform concentration of 10.6 mg/L remains present. A short distance away, chloroform concentrations remain two orders of magnitude lower at location 16 (0.0278 mg/L at 49 feet and <0.005 mg/L at 64 feet). Injection has not been implemented since early 2005. Migration from the 10 mg/L area would be expected to impact downgradient locations within this time; however, the persistent changes to the geochemistry are interpreted as continued degradation of the chloroform mass as it migrates into previously treated areas.

2.3 Dehalobacter Analyses

As described in the July 2012 plan, ten locations were also analyzed for the presence of *Dehalobacter* by quantitative polymerase chain reaction (qPCR). The results of these analyses are presented on Table 3. The presence of *Dehalobacter* was not detected in samples from nine of the ten tested locations. The presence of *Dehalobacter* was noted at direct push location 9 at a count of 138 cells per milliliter (cells/mL).

These results indicate that *Dehalobacter* is not an active part of the chloroform remediation occurring at the site. Typical results associated with active remediation are two or more orders of magnitude higher than the one detection noted. The absence of *Dehalobacter* was noted in a range of locations, including locations with elevated chloroform concentrations (4.15 mg/L, D12-24-54) and locations that have been remediated (<0.005 mg/L, D12-23-69). Also, cis-1,2-dichloroethene (cDCE) was noted at location 9. The limited presence of *Dehalobacter* may be associated with degradation of compounds other than chloroform.

3.0 Plan Forward

As described previously and presented on Figure 4, areas for further remediation have been identified. These areas are defined primarily as locations that are upgradient or otherwise outside of the prior treatment areas. The investigation has shown that the potential for significant downgradient treatment (greater than 100 feet) and persistent effectiveness will be achieved through lactate injection. The investigation has also shown that the injection strategy can be improved by using temporary wells for injection to improve uniform coverage of the treatment area. Use of existing permanent wells limited the area of treatment and resulting gaps were identified. Temporary injection points will avoid this limitation.

The proposed remediation plan is presented on Figure 5.

The upgradient edge of the plume to the east of the former DMT area has not been completely delineated, therefore, three additional locations are shown on Figure 5 for additional direct push investigation. As the first step of the remediation, groundwater samples will be collected from each of these locations following the same protocol used in the late 2012 investigation. One sample will be collected at first groundwater and a second sample will be collected at refusal, if at least ten feet deeper than first groundwater. The samples will be delivered to the laboratory for rush analysis.

Thirty-eight proposed injection locations are presented on Figure 5. The locations have been placed to cover the areas for further remediation as defined on Figure 4. The upgradient injection points are placed north and west of the chloroform plume. Injection locations are then distributed every 100 feet across the width and length of the remaining plumes. An effective radius of influence of 50 feet was used to establish this distribution. Prior data indicates that treatment is effective over 100 to 150 feet from injection and this overlapping placement will provide additional effectiveness to address variations in the subsurface. The locations shown on Figure 5 are approximate and will be finalized based on utility clearance and access. Final injection locations will be surveyed and reported.

Forty drums of sodium lactate material will be delivered to the site for injection. The lactate material will be equivalent to the substrate used in prior injection events and will also be prepared for injection in the same manner as prior events. The contents of one 55-gallon drum will be placed in a mixing tank and diluted to approximately 500 gallons. The injection procedure, however, will be modified from prior events. As described previously, temporary locations installed by direct push will be used for injection. Injection will also be completed using pumps in place of the gravity feed method previously implemented. One drum plus dilution water (approximately 500 gallons total) will be injected at each location. Approximately one half of the total volume will be injected 5 to 10 feet below the groundwater surface. The remainder of the volume will be injected at refusal depth.

Analytical results of the additional monitoring locations are anticipated to be available prior to completion of the 38 proposed injection points. Two additional drums of lactate material will be available. Injection locations for these two drums will be selected based on the results of the analysis. If further injection is required in the area of the additional monitoring, the last two drums will be injected in this area. Otherwise, a field selection will be made to supplement existing injection locations to use the remaining two drums.

After the injection is complete, continued monitoring is planned. Based on prior results, a minimum of one year of monitoring is needed to establish the effectiveness. Monitoring of existing wells in the

area will continue in June and December. In addition, quarterly direct push monitoring will also be implemented for four quarters. The proposed direct push monitoring locations are presented on Figure 6. Four direct push monitoring events will be completed in September 2013, December 2013, March 2014, and June 2014. Samples will be collected at first groundwater and refusal as possible.

After four quarters of monitoring, the results will be reviewed and additional actions will be recommended, if needed.

Other additional actions are proposed after the injection results have been assessed. These actions will be planned and recommended after the remediation monitoring is complete. The post-injection phase of activities will include:

- Investigation of vertical delineation into bedrock Locations for bedrock wells will be selected
 and a series of packer tests will be implemented to collect groundwater samples across a
 range of depths.
- Addition of pairs of permanent monitoring wells for long-term tracking of the remediation –
 Several pairs of monitoring wells will be installed. Each pair will consist of a saprolite well and a bedrock well.
- Using monitoring well data to confirm treatment into bedrock The wide distribution of
 pressure injection at refusal depth is expected to follow chloroform into bedrock; however, if
 chloroform detections persist in bedrock, additional injection plans will be developed.

The prior treatment work has shown that remediation effectiveness persists after the lactate has been consumed. The planned injection mass is expected to be adequate to change the geochemical conditions; however, if the quarterly direct push monitoring events demonstrate that an additional injection is needed, supplemental injections will be proposed, and the supplemental monitoring activities will be delayed as appropriate.

The prior chloroform remediation activities have indicated favorable results within the treatment area. Therefore, the proposed plan is expected to be effective. The improvements of temporary well locations and pressure injection will enhance the effectiveness. Once treatment has been established, confirmation monitoring, including bedrock and long-term analysis plans, will be implemented.

Celanese is prepared to implement this plan upon approval, and the VCC work plan will be submitted in the near future. Ongoing plans, including monitoring, will be presented in the VCC work plan. As a minimum, the VCC work plan will include the activities proposed in this report.

Tables

Parameter	Unit	D12-1-44 9/11/2012	D12-1-72.5 9/21/2012	D12-2-37.5 9/21/2012	D12-3-39 9/10/2012	D12-3-39 Dup 9/10/2012	D12-3-53 9/20/2012	D12-4-44 9/10/2012	D12-4-58 9/20/2012
acetone	mg/L	<0.01	<0.01	0.0151	<0.01	<0.01	<0.01	<0.01	<0.01
2-butanone	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	<0.01	< 0.01
chloroform	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00624	0.00585
1,1-dichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
cis-1,2-dichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.052	0.0764
1,4-dioxane	mg/L	<0.01	R (<0.01)	R (<0.01)	<0.01	<0.01	R (<0.01)	0.0248	0.0218
methylene chloride	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
tetrachloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0408	0.0529
trichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0199	0.0226
nitrate-nitrite nitrogen	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
alkalinity	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
sulfide	mg/L	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not analyzed

mg/L - milligrams per liter

Parameter	Unit	D12-5-23 9/6/2012	D12-6-27 9/6/2012	D12-6-45 9/14/2012	D12-7-17 9/6/2012	D12-7-33 9/20/2012	D12-8-29 9/6/2012	D12-8-50 9/17/2012	D12-9-16 9/6/2012
acetone	mg/L	<0.01	<0.01	0.0132	<0.01	<0.01	<0.01	<0.01	<0.01
2-butanone	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	<0.01	<0.01
chloroform	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0156	0.0542
1,1-dichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
cis-1,2-dichloroethene	mg/L	< 0.005	0.0162	0.0483	< 0.005	< 0.005	< 0.005	0.0174	0.0147
1,4-dioxane	mg/L	<0.01	NA	NA	NA	NA	NA	NA	NA
methylene chloride	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
tetrachloroethene	mg/L	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
trichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
nitrate-nitrite nitrogen	mg/L	3.44	1.01	1.96	0.972	2.65	1.75	2	1.52
alkalinity	mg/L	38.2	4.52	82.4	4.02	45.2	<1	33.2	7.04
sulfate	mg/L	17.3	<1	1.3	12.6	2.51	<1	<1	<1
sulfide	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

NA - Not analyzed

mg/L - milligrams per liter

Parameter	Unit	D12-9-16 Dup 9/6/2012	D12-9-47 9/20/2012	D12-9-47 Dup 9/20/2012	D12-10-29 9/4/2012	D12-10-29 Dup 9/4/2012	D12-10-58.5 9/11/2012	D12-11-25 9/5/2012
acetone	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.0209	<0.01
2-butanone	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
chloroform	mg/L	0.0564	0.0171	0.0171	1.17	1.2	1.46	0.0365
1,1-dichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
cis-1,2-dichloroethene	mg/L	0.0155	0.0339	0.0335	< 0.005	< 0.005	0.0104	< 0.005
1,4-dioxane	mg/L	NA	NA	NA	NA	NA	NA	NA
methylene chloride	mg/L	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0131	< 0.005
tetrachloroethene	mg/L	<0.005	< 0.005	< 0.005	< 0.005	0.00509	<0.005	< 0.005
trichloroethene	mg/L	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
nitrate-nitrite nitrogen	mg/L	1.51	1.85	1.88	1.92	1.93	4.24	1.03
alkalinity	mg/L	5.03	43.2	57.3	3.48	<1	123	14.9
sulfate	mg/L	<1	1.2	1.04	<1	<1	3.82	<1
sulfide	mg/L	<0.05	< 0.05	<0.05	< 0.05	< 0.05	< 0.05	< 0.05

NA - Not analyzed

mg/L - milligrams per liter

Parameter	Unit	D12-11-40.5 9/12/2012	D12-12-39 9/4/2012	D12-12-49 9/4/2012	D12-12-60 9/13/2012	D12-13-37 9/14/2012	D12-13-47.5 9/14/2012	D12-14-49 9/10/2012	D12-14-64 9/12/2012
acetone	mg/L	0.0182	<0.01	0.0102	0.014	0.0161	0.0582	<0.01	<0.01
2-butanone	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.0133	<0.01	<0.01
chloroform	mg/L	0.016	0.0226	0.0996	0.134	3.14	4.21	0.0302	< 0.005
1,1-dichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
cis-1,2-dichloroethene	mg/L	0.0257	< 0.005	< 0.005	< 0.005	0.00501	0.00702	< 0.005	< 0.005
1,4-dioxane	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	0.0184	0.0414	< 0.005	< 0.005
tetrachloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
trichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
nitrate-nitrite nitrogen	mg/L	2.06	1.37	1.07	2.13	2.27	2.03	2.54	3.15
alkalinity	mg/L	46.2	32.8	44.3	13.1	45.7	66.3	26.6	69.3
sulfate	mg/L	<1	1	1.69	<1	<1	<1	<1	<1
sulfide	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

NA - Not analyzed

mg/L - milligrams per liter

Parameter	Unit	D12-15-49 9/10/2012	D12-15-60 9/12/2012	D12-15-69.5 9/11/2012	D12-16-49 9/7/2012	D12-16-49 Dup 9/7/2012	D12-16-64 9/13/2012	D12-17-63 9/25/2012
acetone	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01
2-butanone	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01
chloroform	mg/L	< 0.005	10.6	1.51	0.0278	0.0285	<0.005	< 0.005
1,1-dichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005
cis-1,2-dichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005
1,4-dioxane	mg/L	NA	NA	NA	NA	NA	NA	NA
methylene chloride	mg/L	< 0.005	< 0.005	0.00907	< 0.005	< 0.005	<0.005	< 0.005
tetrachloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005
trichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005
nitrate-nitrite nitrogen	mg/L	1.78	2.41	2.42	8.09	8.12	2.73	0.759
alkalinity	mg/L	32.7	10.6	88.4	3.02	4.02	55.3	23.6
sulfate	mg/L	<1	<1	<1	<1	<1	<1	<1
sulfide	mg/L	< 0.05	< 0.05	0.0835	< 0.05	< 0.05	< 0.05	< 0.05

NA - Not analyzed

mg/L - milligrams per liter

Parameter	Unit	D12-17-74 9/25/2012	D12-18-63 9/25/2012	D12-18-74.5 9/25/2012	D12-19-63 9/24/2012	D12-19-80 9/24/2012	D12-20-59 9/21/2012	D12-21-63 9/25/2012	D12-22-63 9/24/2012
acetone	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.0466	<0.01	<0.01
2-butanone	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.0101	<0.01	<0.01
chloroform	mg/L	< 0.005	< 0.005	< 0.005	0.00828	< 0.005	0.118	< 0.005	< 0.005
1,1-dichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
cis-1,2-dichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,4-dioxane	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
tetrachloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
trichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
nitrate-nitrite nitrogen	mg/L	0.182	0.123	0.345	0.0269	< 0.02	1.72	0.445	0.206
alkalinity	mg/L	35.2	32.2	21.6	43.2	78.4	46.2	23.1	24.6
sulfate	mg/L	<1	<1	<1	<1	<1	<1	<1	<1
sulfide	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

NA - Not analyzed

mg/L - milligrams per liter

Parameter	Unit	D12-22-74.5 9/24/2012	D12-23-59 9/19/2012	D12-23-69 9/19/2012	D12-24-37 9/7/2012	D12-24-54 9/19/2012	D12-25-26 9/7/2012	D12-25-57_5 9/17/2012	D12-26-30 9/7/2012
acetone	mg/L	0.0107	<0.01	0.0263	0.0206	<0.01	<0.01	<0.01	<0.01
2-butanone	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
chloroform	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	4.15	< 0.005	0.221	0.126
1,1-dichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00644	< 0.005
cis-1,2-dichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,4-dioxane	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
tetrachloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
trichloroethene	mg/L	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005
nitrate-nitrite nitrogen	mg/L	0.982	0.317	1.75	0.194	2.24	0.334	1.03	1.01
alkalinity	mg/L	39.7	88.4	57.3	56.8	30.2	24.1	46.2	38.2
sulfate	mg/L	<1	1.16	<1	1.85	<1	<1	<1	<1
sulfide	mg/L	< 0.05	<0.05	<0.05	< 0.05	<0.05	<0.05	<0.05	< 0.05

NA - Not analyzed

mg/L - milligrams per liter

Parameter	Unit	D12-26-60 9/17/2012	D12-26-60 Dup 9/17/2012	D12-27-61 12/11/2012	D12-27-75 12/11/2012	D12-28-66 12/11/2012	D12-28-87 12/10/2012	D12-29-41 12/12/2012
acetone	mg/L	<0.01	<0.01	0.0179	<0.01	<0.01	0.0149	<0.01
2-butanone	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
chloroform	mg/L	0.285	0.27	0.299	0.361	1.04	1.12	0.00583
1,1-dichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	0.0108	< 0.005	< 0.005
cis-1,2-dichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,4-dioxane	mg/L	NA	NA	NA	NA	NA	NA	NA
methylene chloride	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
tetrachloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
trichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
nitrate-nitrite nitrogen	mg/L	1.33	1.37	1.18	0.919	1.67	1.26	0.942
alkalinity	mg/L	37.7	34.7	75.9	56.4	67.7	86.1	27.2
sulfate	mg/L	<1	<1	<1	<1	<1	3.27	<1
sulfide	mg/L	< 0.05	<0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

NA - Not analyzed

mg/L - milligrams per liter

Parameter	Unit	D12-29-41 Dup 12/12/2012	D12-29-50 12/12/2012	D12-30-20 12/13/2012	D12-30-50 12/13/2012	MW-52 12/5/2012
acetone	mg/L	<0.01	<0.01	<0.01	<0.01	< 0.01
2-butanone	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
chloroform	mg/L	0.00581	0.00902	0.0733	0.0228	< 0.005
1,1-dichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
cis-1,2-dichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,4-dioxane	mg/L	NA	NA	NA	NA	NA
methylene chloride	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
tetrachloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
trichloroethene	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
nitrate-nitrite nitrogen	mg/L	0.945	0.963	0.955	0.0802	NA
alkalinity	mg/L	32.8	41	60.5	108	NA
sulfate	mg/L	<1	<1	<1	1.45	NA
sulfide	mg/L	<0.05	< 0.05	< 0.05	<0.05	NA

NA - Not analyzed

mg/L - milligrams per liter

Table 2 Summary of Permanent Monitoring Well Analytical Results December 2012 Auriga Spartanburg Facility AECOM Project No. 60280417

		EW-31	EW-37	EW-41	EW-41 Dup	EW-49	EW-52	EW-53	MW-52	MW-99	MW-103
Parameter Volatile Organics	Unit	12/05/2012	12/06/2012	12/05/2012	12/05/2012	12/05/2012	12/06/2012	12/06/2012	12/05/2012	12/06/2012	12/06/2012
chloroform	mg/L	<0.005	<0.005	0.0778	0.079	<0.005	<0.005	<0.005	<0.005	0.00744	<0.005
cis-1,2-dichloroethene	mg/L	<0.005	<0.005	<0.005	<0.005	0.00651	0.0441	<0.005	<0.005	0.094	<0.005
tetrachloroethene	mg/L	<0.005	0.00664	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.163	<0.005
trichloroethene	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0316	<0.005
Field and Natural Attenuation	Parameters										
alkalinity	mg/L	120	26.7	33.3	34.3	91.2	52.3	62.5	NA	3.59	3.59
chloride	mg/L	8	12.1	3.74	3.81	2.17	3.09	10.5	NA	1.87	2.99
dissolved oxygen	mg/L	0.43	0.22	0.38	0.38	0.6	0.37	0.21	4.11	2.11	6.82
ferrous iron	mg/L	1.2	0.2	1.2	1.2	0.0	4.2	4.6	NA	<0.1	<0.1
groundwater elevation	feet MSL	669.18	718.11	669.05	669.05	725.05	721.48	694.24	687.67	730.01	689.05
manganese (dissolved)	mg/L	1.56	0.917	0.896	0.884	0.057	0.201	1.45	NA	0.035	0.043
ORP	mV	-105.8	151.3	44	44	-189.4	-71.9	-22	153.4	277.5	345.3
рН	su	6.92	5.74	5.82	5.82	8.14	6.45	6.18	6.44	5.21	4.61
specific conductance	umhos/cm	269	125	103	103	209	154	171	149	30	53
temperature	degrees C	16.55	18.34	17.45	17.45	18.55	14.63	18.85	18.51	18.69	16.64
total organic carbon	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
turbidity	NTU	4.3	7.2	60.7	60.7	2.2	40.5	18.9	650	8.2	5.8

NA - Not Analyzed degrees C - degrees Celsius feet MSL - feet above mean sea level mg/L - milligrams per liter mV - millivolts NTU - nephelometric turbidity units

su - standard units umhos/cm - micromhos/cm

Table 2 Summary of Permanent Monitoring Well Analytical Results December 2012 Auriga Spartanburg Facility AECOM Project No. 60280417

Parameter	Unit	MW-105 12/05/2012	MW-106 12/05/2012	MW-107 12/06/2012	MW-109 12/05/2012	RW-29 12/05/2012	RW-48 12/05/2012	RW-65 12/06/2012	RW-108 12/05/2012
Volatile Organics									
chloroform	mg/L	0.117	0.218	0.0468	0.586	<0.005	<0.005	<0.005	<0.005
cis-1,2-dichloroethene	mg/L	0.0165	< 0.005	<0.005	<0.025	<0.005	<0.005	<0.005	<0.005
tetrachloroethene	mg/L	< 0.005	< 0.005	<0.005	<0.025	<0.005	<0.005	<0.005	<0.005
trichloroethene	mg/L	<0.005	<0.005	<0.005	<0.025	<0.005	<0.005	<0.005	<0.005
Field and Natural Attenuation	Parameters								
alkalinity	mg/L	9.74	<1	25.1	16.4	65.8	62.4	107	186
chloride	mg/L	6.22	11.2	2.16	3.62	1.48	3.23	12.7	4.94
dissolved oxygen	mg/L	4.39	6.55	7.36	9.21	0.21	0.24	0.55	0.41
ferrous iron	mg/L	<0.1	<0.1	<0.1	0.14	0.0	1.6	0.4	0.16
groundwater elevation	feet MSL	715.59	716.04	685.08	674	770.99	704.91	682.84	673.3
manganese (dissolved)	mg/L	<0.01	0.021	<0.01	<0.01	0.014	2.65	1.8	0.169
ORP	mV	226.8	292.9	197.6	184.1	-240.7	-175.9	-86.5	-86.11
рН	su	5.37	4.95	5.63	5.82	8.13	6.84	7.37	7.81
specific conductance	umhos/cm	69	63	67	56	152	208	258	326
temperature	degrees C	18.67	18.95	17.0	17.91	17.75	18.25	16.77	17.79
total organic carbon	mg/L	<1	<1	<1	<1	<1	<1	<1	<1
turbidity	NTU	2.2	3.4	0.6	281.6	6.9	75.8	1.8	15

NA - Not Analyzed

degrees C - degrees Celsius

feet MSL - feet above mean sea level

mg/L - milligrams per liter

mV - millivolts

NTU - nephelometric turbidity units

su - standard units

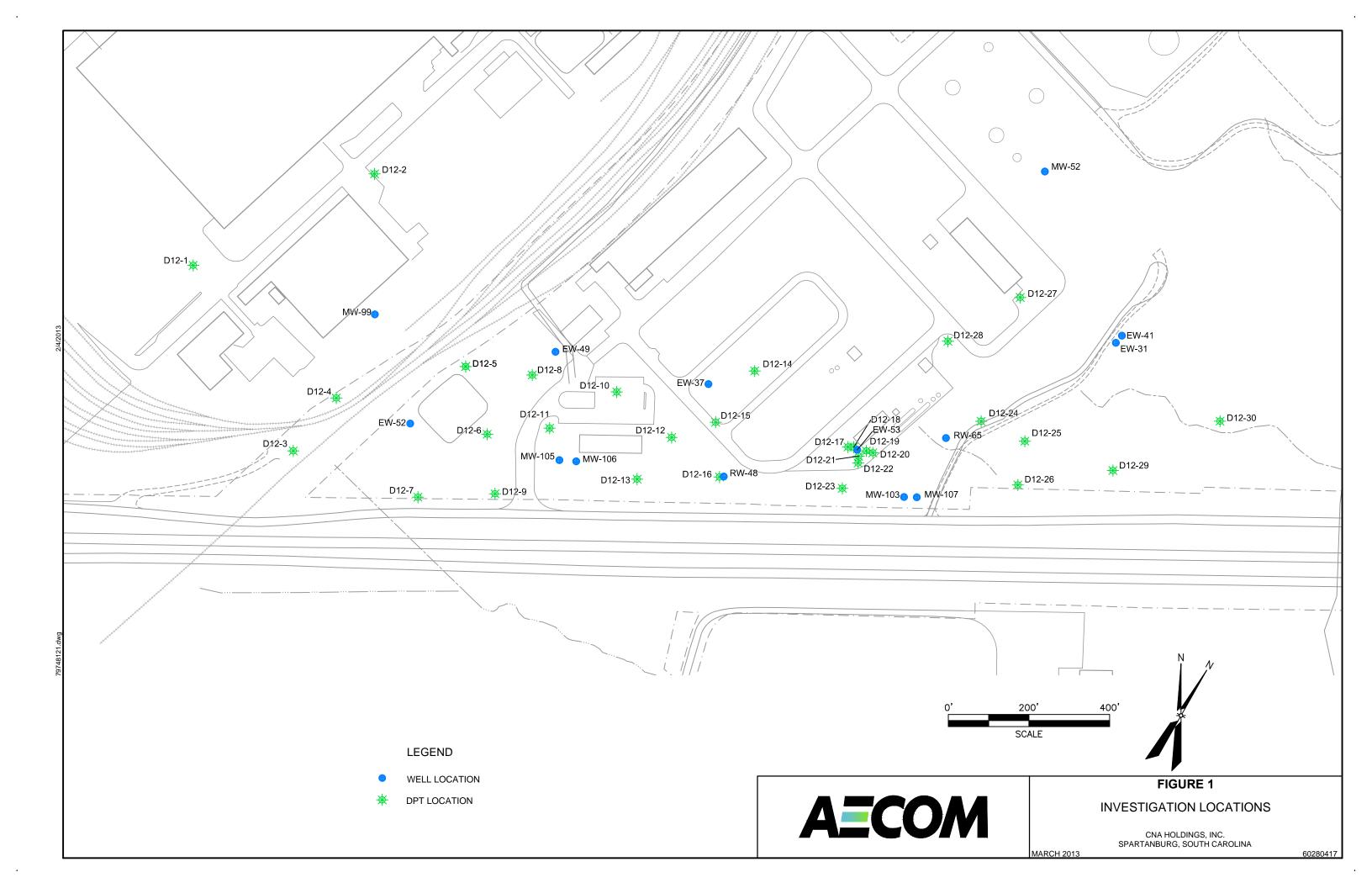
umhos/cm - micromhos/cm

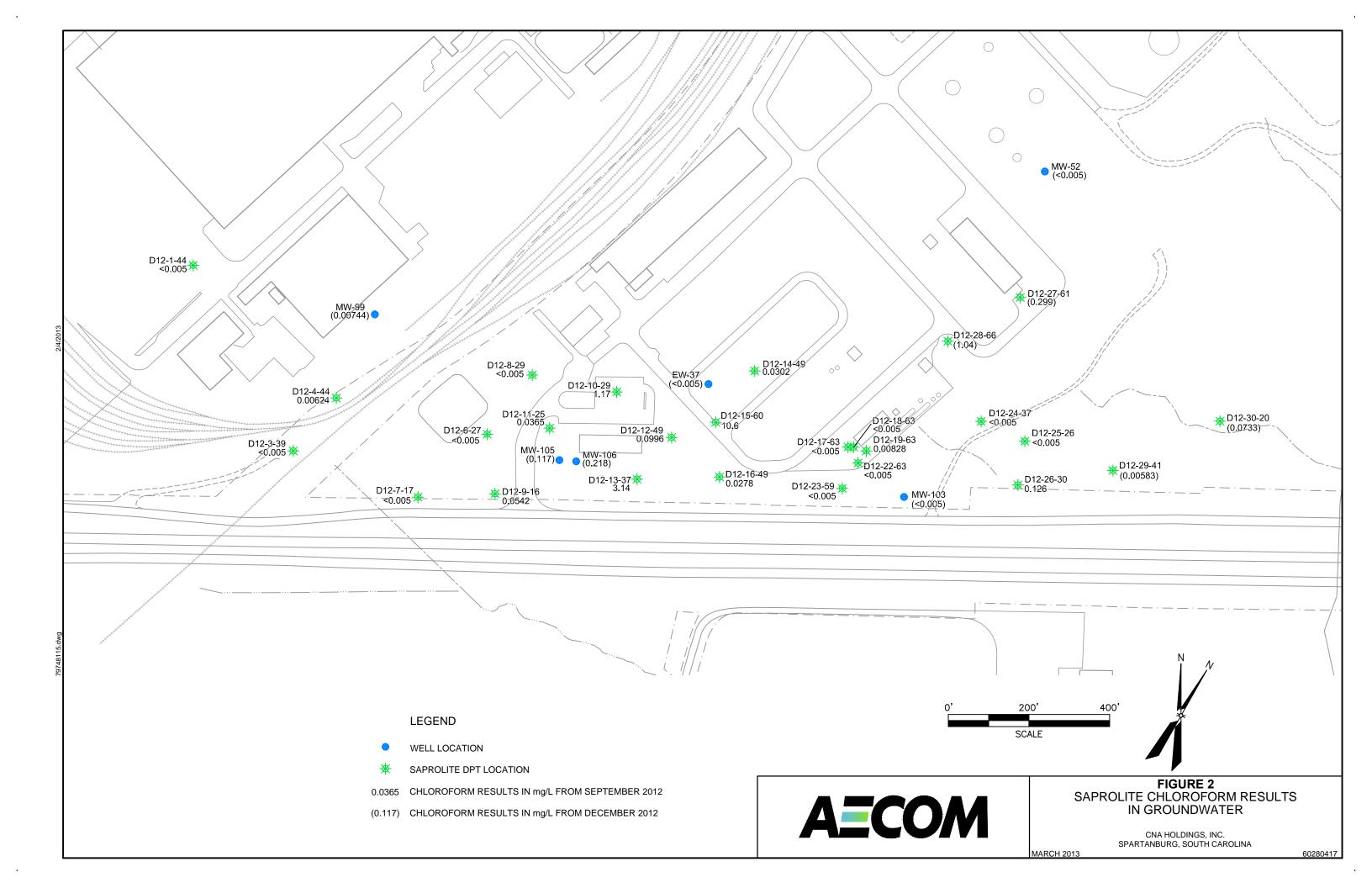
Table 3 Summary of Dehalobacter Analyses September 2012 Auriga Spartanburg Facility

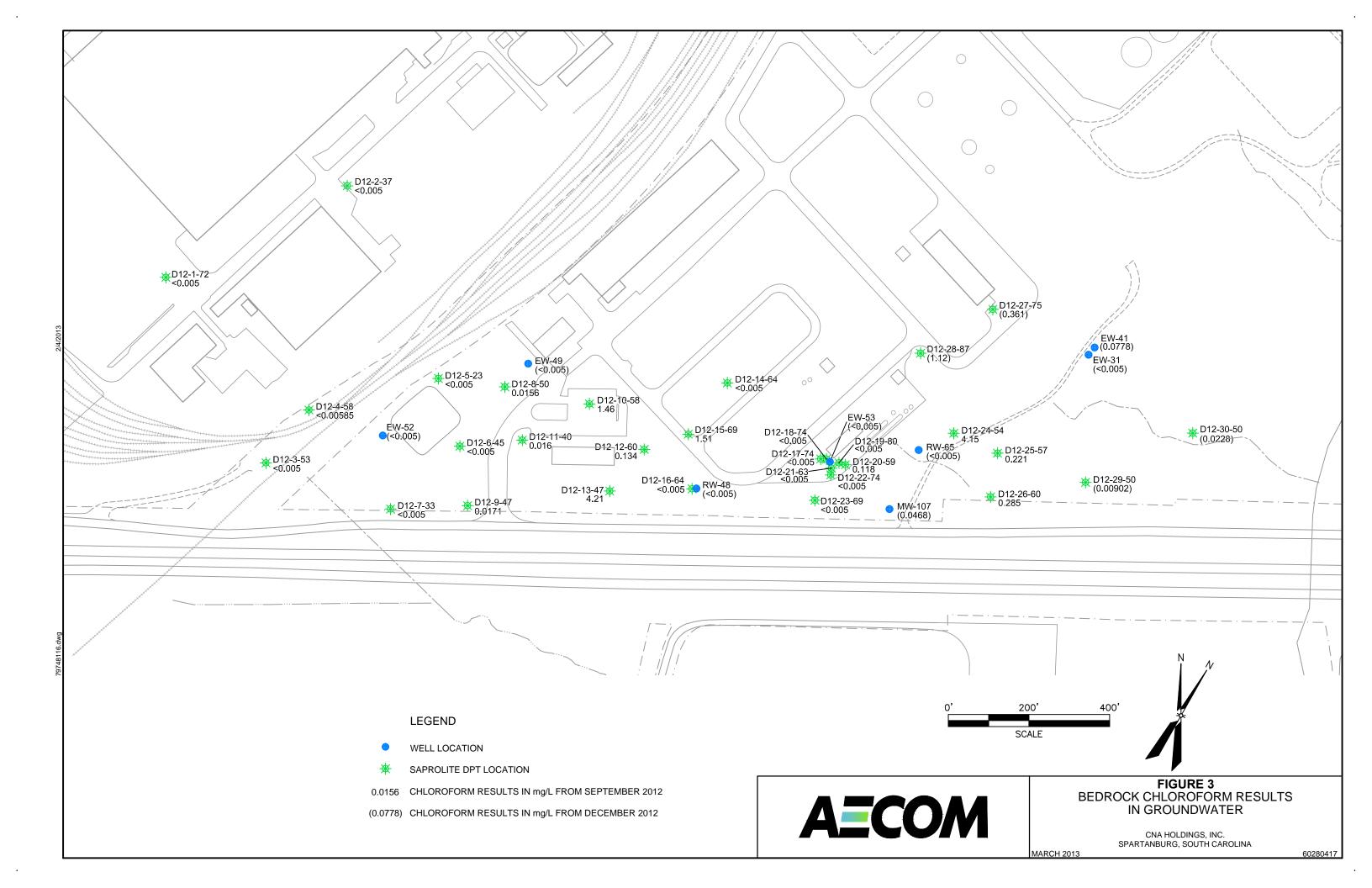
AECOM Project No. 60280417

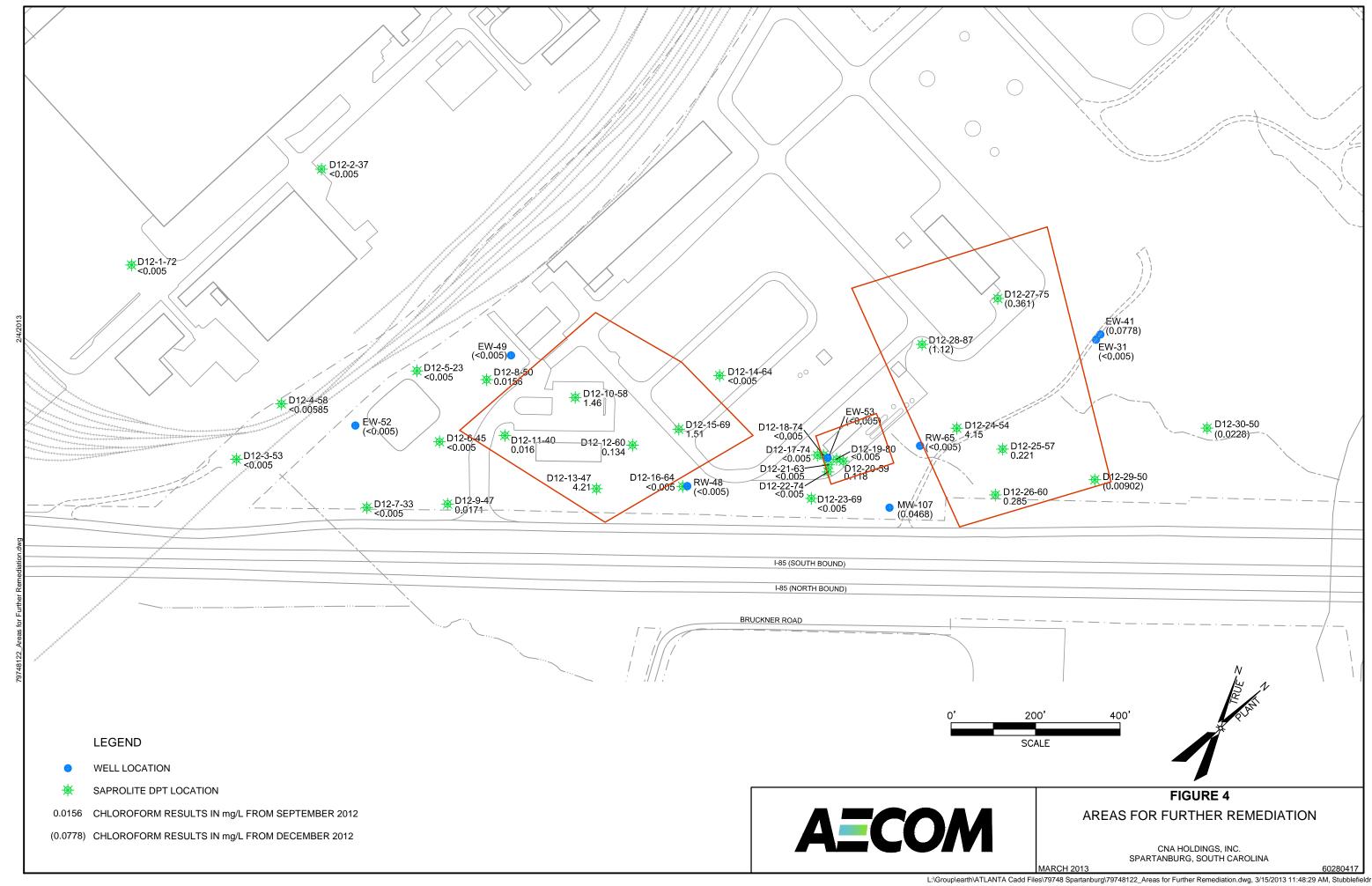
Parameter	Unit	D12-5-25 9/6/2012	D12-9-47 9/20/2012	D12-10-58.5 9/11/2012	D12-11-40.5 9/12/2012	D12-14-64 9/12/2012	D12-15-69.5 9/11/2012			D12-24-54 9/19/2012	
Dehalobacter	cells/mL	<35.3	138	<15.8	<13.0	<13.6	<18.2	<42.9	<69.8	<69.8	<17.6

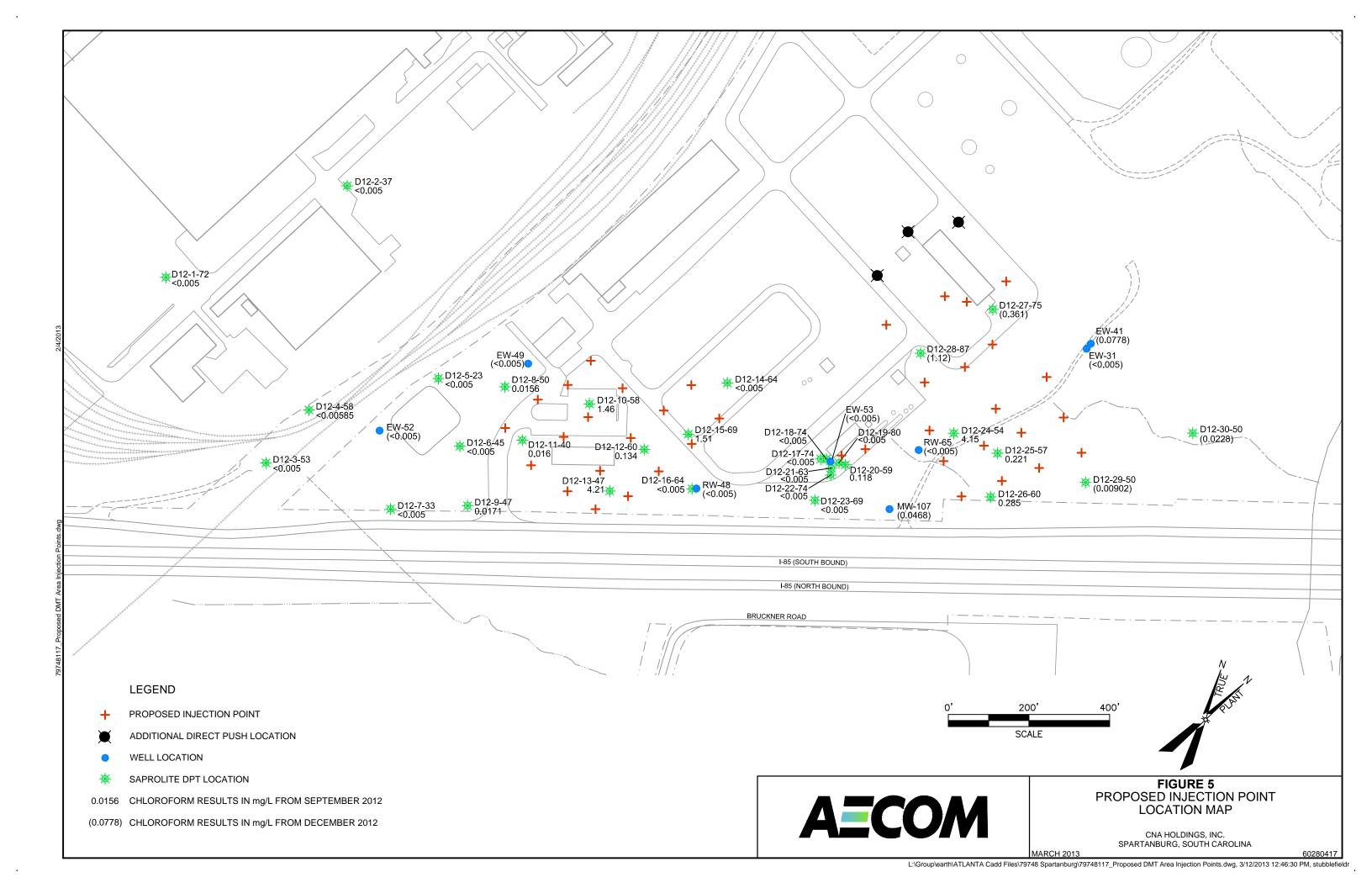
Figures

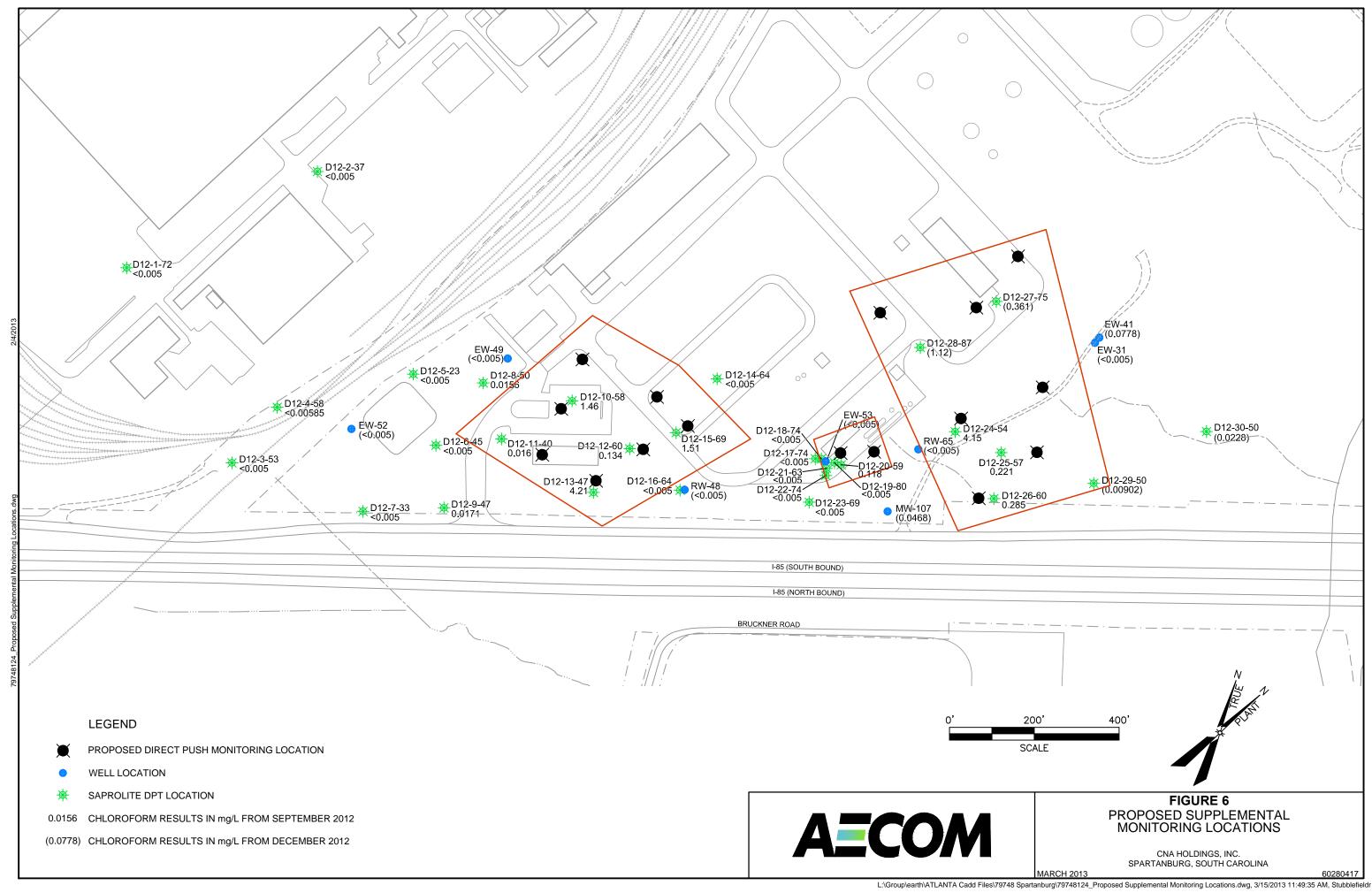












Appendix A

Analytical Data



LABORATORY ANALYSIS REPORT

September 20, 2012

BRYON DAHLGREN AECOM 1455 OLD ALABAMA RD. SUITE 170 ROSWELL, GA 30076

Report ID: AK2003

Page 1 of 45

Login Number

:L12090513

Project Number

:61576.08

Description

:AURIGA - SPARTANBURG, SC

Dear Bryon Dahlgren:

We are pleased to provide the enclosed analytical results for the samples received by Davis & Floyd, Inc. on September 05, 2012.

A formal Quality Assurance/Quality Control program is maintained by Davis & Floyd, which is designed to meet or exceed the ISO/IEC 17025, EPA, NELAP or other appropriate regulatory requirements. All analytical analyses for this project met QA/QC criteria and the results are within the 99% confidence interval for each method unless otherwise stated in the footnotes. This report is to be reproduced only in full.

Feel free to contact our Client Services Representative at (864) 229-4413 if further explanation of the analysis is required. Unless other arrangements have been made, samples will be disposed of or returned 14 days from the date of the report. We appreciate the opportunity to provide services to your firm.

Sincerely, DAVIS & FLOYD, INC.

John H. McCord, Jr. Laboratory Manager

This report conatins a TOTAL of _

pages, including attachments.

Initials:



LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD. SUITE 170

ROSWELL, GA 30076

Report Date : September 20, 2012

Contact : BRYON DAHLGREN

Report ID: AK2003 Page 2 of 45

Certificate of Analysis Report

Sample ID	Client ID	Date Collected	Date Received	
		00/04/0010 1015	09/05/2012	
L12090513-01	D12-10-29	09/04/2012 1215	· • •	
L12090513-02	D12-10-29-A	09/04/2012 1215	09/05/2012	
L12090513-03	D12-12-39	09/04/2012 1415	09/05/2012	
L12090513-04	D12-12-49	09/04/2012 1550	09/05/2012	
L12090513-05	D12-11-25	09/05/2012 0925	09/05/2012	
L12090513-06	TRIP BLANK		09/05/2012	

This data report has been prepared and reviewed in accordance with standard operating procedures. Test results relate only to the sample tested.

Please direct any questions to your Project/Manager.

Reviewed by

Laboratory Manager



LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : September 20, 2012

Page 3 of 45 Report ID: AK2003

Certificate of Analysis

Client ID: **D12-10-29** Sample ID: L12090513-01 Date Collected: 09/04/2012 1215

Date Received : 09/05/2012

Units \mathtt{RDL} Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

/Time: 09/06/2012 1058 Analyst: PA	P	ם	ilution:	1		
,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
,1,2,2-TETRACHLOROETHANE	<	5,00	U	5,00	ug/l	
,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l	
,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
,1-DICHLOROETHANE	<	5,00	U	5.00	ug/l	
,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
.,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
.,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
.,2-DICHLOROETHANE	<	5,00	U	5.00	ug/l	
.,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l	
.,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
.,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5.00	U	5.00	ug/l	
ROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
ROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	υ	5.00	ug/l	
CYCLOHEXANE	<	5.00	U	5.00	ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l	
TOWN OR OF THE MODE CARDENIA NE	<	5.00	U	5.00	ug/l	
DICHLORODIFLUOROMETHANE						



LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

Page 4 of 45 Report ID: AK2003

Certificate of Analysis

Client ID: D12-10-29 Sample ID: L12090513-01 Date Collected: 09/04/2012 1215

Date Received : 09/05/2012

Parameter			Result	Qual	RDL	Units	
ISOPROPYL BENZENE		<	5.00	U	5.00	ug/l	
METHYL ACETATE		<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER		<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE		<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE		<	5.00	U	5.00	ug/l	
STYRENE		<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE		<	5.00	U	5.00	ug/l	
TOLUENE		<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE		<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE		<	5.00	U	5.00	ug/l	
TRICHLOROETHENE		<	5.00	Ū	5.00	ug/l	
TRICHLOROFLUOROMETHANE		<	5.00	U	5.00	ug/l	
VINYL ACETATE		<	10.0	U	10.0	ug/l	
VINYL CHLORIDE		<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)		<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4			110	응	(74-140)		
Surr: BROMOFLUOROBENZENE			107	응	(77-133)		
Surr: TOLUENE-D8			108	용	(77-131)		
Date/Time: 09/06/2012 1401	Analyst: P	AP		Dilutio	n: 10	***************************************	
CHLOROFORM			1170		50.0	ug/l	
Surr: 1,2-DICHLOROETHANE-D4			115	용	(74-140)		
Surr: BROMOFLUOROBENZENE			107	음	(77-133)		
Surr: TOLUENE-D8			109	왕	(77-131)		
et Chemistry							
PA 353.2							
Date/Time: 09/12/2012 1359	Analyst: L	ES		Dilutio	***************************************		
NITRATE + NITRITE NITROGEN	(AS N)		1.92		0.0400	mg/l	
f 2320B							
Date/Time: 09/06/2012 1434	Analyst: C	'DC'		Dilutio			
ALKALINITY, TOTAL			3,48		1.00	mg/l	
ENDPOINT PH			4.19			su	
M 4500-S2-D							
Date/Time: 09/10/2012 1542	Analyst: C	'DC		Dilutio			
SULFIDE, TOTAL		<	0.0500	U	0.0500	mg/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

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Certificate of Analysis

Client ID: D12-10-29

Sample ID: L12090513-01

Date Collected: 09/04/2012 1215

Date Received : 09/05/2012

Units RDLParameter Result Qual

SW846 9056A

Dilution: 1 Analyst: CDC Date/Time: 09/12/2012 1752

1.00 U 1.00 SULFATE



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

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Certificate of Analysis

Client ID: D12-10-29-A Sample ID: L12090513-02 Date Collected: 09/04/2012 1215

Date Received : 09/05/2012

Units Parameter Result \mathtt{RDL}

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 09/06/2012 1124 Analyst: PA	AP	Di	lutíon: 1		
1,1,1-TRICHLOROETHANE	<	5.00	Ŭ 5	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	Ŭ .	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	T 1	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U 5	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U 5	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	υ <u> </u>	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5,00	T 5	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	υ <u>5</u>	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	υ <u>5</u>	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U 5	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	Ū .	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U 5	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U 5	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U 5	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U 5	5.00	ug/1
2-BUTANONE	<	10.0	ט :	10.0	ug/l
2-HEXANONE	<	10.0	ט :	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U 5	5.00	ug/l
ACETONE	<	10.0	U :	10.0	ug/l
BENZENE	<	5.00	U 5	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U 5	5.00	ug/l
BROMOFORM	<	5.00	U 5	5.00	ug/l
BROMOMETHANE	<	10.0	ט :	10.0	ug/l
CARBON DISULFIDE	<	5.00	U 5	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U :	5.00	ug/l
CHLOROBENZENE	<	5,00	U !	5.00	ug/l
CHLOROETHANE	<	10.0	υ :	10.0	ug/l
CHLOROMETHANE	<	10.0	υ :	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	Ū .	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U !	5.00	ug/l
CYCLOHEXANE	<	5.00	υ !	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	υ !	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U !	5.00	ug/l
ETHYLBENZENE	<	5.00	υ !	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

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Certificate of Analysis

Client ID: **D12-10-29-A** Sample ID: L12090513-02 Date Collected: 09/04/2012 1215

Date Received : 09/05/2012

Parameter			Result	Qua	1 RDL	Units	
ISOPROPYL BENZENE		<	5.00	U	5.00	ug/l	
METHYL ACETATE		<	10.0	Ū	10.0	ug/l	
METHYL-TERT-BUTYL ETHER		<	5.00	U	5,00	ug/l	
METHYLCYCLOHEXANE		<	5.00	U	5,00	ug/l	
METHYLENE CHLORIDE		<	5.00	Ü	5.00	ug/l	
STYRENE		<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE			5.09		5.00	ug/l	
TOLUENE		<	5,00	U	5.00	ug/l	
TRANS-1, 2-DICHLOROETHENE		<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE		<	5.00	U	5.00	ug/l	
TRICHLOROETHENE		<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE		<	5.00	U	5.00	ug/l	
VINYL ACETATE		<	10.0	U	10.0	ug/l	
VINYL CHLORIDE		<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)		<	5,00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4			110	용	(74-140)		
Surr: BROMOFLUOROBENZENE			108	용	(77-133)		
Surr: TOLUENE-D8			108	용	(77-131)		
Date/Time: 09/06/2012 1426	Analyst: PAP			Dilut	ion: 10		
CHLOROFORM			1200		50.0	ug/l	
Surr: 1,2-DICHLOROETHANE-D4			112	용	(74-140)		
Surr: BROMOFLUOROBENZENE			106	용	(77-133)		
Surr: TOLUENE-D8			106	용	(77-131)		
Vet Chemistry							
PA 353.2							
Date/Time: 09/12/2012 1401	Analyst: LES			Dilut	ion: 2	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
NITRATE + NITRITE NITROGEN	(AS N)		1.93		0.0400	mg/l	
M 2320B							
Date/Time: 09/06/2012 1443	Analyst: CDC			Dilut	ion: 1		
ALKALINITY, TOTAL		<	1.00	U	1.00	mg/l	
ENDPOINT PH			4.19			su	
M 4500-S2-D							
Date/Time: 09/10/2012 1543	Analyst: CDC			Dilut	ion: 1		
SULFIDE, TOTAL		<	0.0500	U	0.0500	mg/l	



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : September 20, 2012

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Certificate of Analysis

Client ID: D12-10-29-A

Sample ID: L12090513-02

Date Collected: 09/04/2012 1215

Date Received : 09/05/2012

Parameter

Result

RDL

Units

SW846 9056A

Date/Time: 09/12/2012 1822

Analyst: CDC

Dilution: 1

SULFATE



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

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Certificate of Analysis

Client ID: **D12-12-39** Sample ID: L12090513-03 Date Collected: 09/04/2012 1415

Units

Date Received : 09/05/2012

 \mathtt{RDL}

Parameter Result Qual

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Time: 09/06/2012 1335 Analyst:	PAP	E	ilution	; 1	***************************************
,1,1-TRICHLOROETHANE	<	5.00	Ū	5.00	ug/l
,1,2,2-TETRACHLOROETHANE	<	5,00	U	5.00	ug/l
,1,2-TRICHLORO-1,2,2-TRIFLUOROETHAN	Ξ <	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5,00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5,00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM		22.6		5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SULFATE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

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Certificate of Analysis

Client ID: D12-12-39 Sample ID: L12090513-03 Date Collected: 09/04/2012 1415

Date Received : 09/05/2012

1.00

mg/1

Parameter			Result	Qua1	RDL	Units	
			F 00	**	5.00	ug/l	
ETHYLBENZENE		<	5.00	U		- '	
ISOPROPYL BENZENE		<	5.00	U	5.00	ug/l	
METHYL ACETATE		<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER		<	5.00	U 	5.00	ug/l	
METHYLCYCLOHEXANE		<	5.00	U	5.00	ug/1	
METHYLENE CHLORIDE		<	5.00	U	5.00	ug/l	
STYRENE		<	5.00	Ū	5.00	ug/l	
TETRACHLOROETHENE		<	5.00	Ū	5.00	ug/l	
TOLUENE		<	5.00	Ū	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE		<	5.00	Ū	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE		<	5.00	U	5.00	ug/l	
TRICHLOROETHENE		<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE		<	5.00	U	5.00	ug/l	
VINYL ACETATE		<	10.0	U	10.0	ug/l	
VINYL CHLORIDE		<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)		<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4			112	용	(74-140)		
Surr: BROMOFLUOROBENZENE			106	음	(77-133)		
Surr: TOLUENE-D8			108	용	(77-131)		
et Chemistry							
PA 353.2							
Date/Time: 09/12/2012 1404	Analyst: LES	!		Dilutio	n: 2	***********	
NITRATE + NITRITE NITROGEN	(AS N)		1.37		0.0400	mg/l	
1 2320B							
Date/Time: 09/06/2012 1502	Analyst: CDC	;		Dilutio	n: 1		
ALKALINITY, TOTAL			32.8		1.00	mg/l	
ENDPOINT PH			4.50			su	
1 4500-S2-D							
Date/Time: 09/10/2012 1544	Analyst: CDC	!		Dilutio:	n: 1	***************************************	****
SULFIDE, TOTAL		<	0.0500	U	0.0500	mg/l	
V846 9056A							
Date/Time: 09/12/2012 1954	Analyst: CDC	<u>'</u>		Dilutio:	n: 1		

1.00



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

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Certificate of Analysis

Client ID: D12-12-49

Sample ID: L12090513-04

Date Collected: 09/04/2012 1550

Date Received : 09/05/2012

Units Result \mathtt{RDL} Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 09/06/2012 1216 Analyst: PA	LP.	Dilution: 1	L	
1,1,1-TRICHLOROETHANE	<	5.00 U		g/l
1,1,2,2-TETRACHLOROETHANE	<	5.00 U	5.00 u	g/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U	10.0 u	g/l
1,1,2-TRICHLOROETHANE	<	5.00 U	5.00 u	g/l
1,1-DICHLOROETHANE	<	5.00 U	5.00 u	g/l
1,1-DICHLOROETHENE	<	5.00 U	5.00 u	g/l
1,2,3-TRICHLOROBENZENE	<	5.00 U	5.00 ບ	g/1
1,2,4-TRICHLOROBENZENE	<	5.00 U	5.00 u	g/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00 ບ	g/l
1,2-DIBROMOETHANE	<	5.00 U	5.00 ບ	g/l
1,2-DICHLOROBENZENE	<	5.00 U	5.00 ບ	g/1
1,2-DICHLOROETHANE	<	5.00 U	5.00 ບ	g/1
1,2-DICHLOROPROPANE	<	5.00 U	5.00 U	g/l
1,3-DICHLOROBENZENE	<	5,00 U	5.00 U	g/l
1,4-DICHLOROBENZENE	<	5.00 U	5.00 U	lg/1
2-BUTANONE	<	10.0 U	10.0 u	.g/1
2-HEXANONE	<	10.0 U	10.0 u	ıg/1
4-METHYL-2-PENTANONE	<	5.00 U	5.00 u	ıg/l
ACETONE		10,2	10.0 u	ıg/l
BENZENE	<	5.00 U	5.00 u	ıg/1
BROMODICHLOROMETHANE	<	5.00 U	5.00 u	ıg/1
BROMOFORM	<	5.00 U	5.00 u	ıg/l
BROMOMETHANE	<	10.0 U	10.0 u	ıg/1
CARBON DISULFIDE	<	5.00 U	5.00 u	ıg/l
CARBON TETRACHLORIDE	<	5.00 U	5.00 u	ıg/l
CHLOROBENZENE	<	5.00 U		ıg/1
CHLOROETHANE	<	10.0 U		ıg/l
CHLOROFORM		99.6		ıg/l
CHLOROMETHANE	<	10.0 U		ng/l
CIS-1,2-DICHLOROETHENE	<	5.00 U		ıg/l
CIS-1,3-DICHLOROPROPENE	<	5.00 U		ng/l
CYCLOHEXANE	<	5.00 U		ng/l
DIBROMOCHLOROMETHANE	<	5.00 U		ng/l
DICHLORODIFLUOROMETHANE	<	5.00 U	5.00 ı	ıg/1



SW846 9056A

SULFATE

Date/Time: 09/12/2012 2024

Analyst: CDC

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

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Certificate of Analysis

Client ID: D12-12-49 Sample ID: L12090513-04 Date Collected: 09/04/2012 1550

Date Received : 09/05/2012

Parameter		Result	Qua1	RDL	Units	
					/3	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	Ū	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	Ū	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	Ū	5.00	ug/l	
METHYLENE CHLORIDE	<	5,00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/1	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/1	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		112	용	(74-140)		
Surr: BROMOFLUOROBENZENE		109	용	(77-133)		
Surr: TOLUENE-D8		108	ે	(77-131)		
t Chemistry						
PA 353.2						
Date/Time: 09/12/2012 1406 Anal	lyst: LES		Dilution	1: 2	***************************************	
NITRATE + NITRITE NITROGEN (AS 1	4)	1.07		0.0400	mg/l	
1 2320B						
Date/Time: 09/06/2012 1549 Ana	lyst: CDC		Dilution	1: 1		
ALKALINITY, TOTAL		44.3		1.00	mg/l	
ENDPOINT PH		4.49			su	
1 4500- <i>S2-</i> D						
Date/Time: 09/10/2012 1545 Ana.	lyst: CDC		Dilution	1: 1	***************************************	
SULFIDE, TOTAL	<	0.0500	U	0.0500	mg/l	

1.69

Dilution: 1

mg/1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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Certificate of Analysis

Client ID: D12-11-25 Sample ID: L12090513-05

Date Collected: 09/05/2012 0925

Date Received : 09/05/2012

Parameter

RDL

Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

te/Time: 09/06/2012 1242 Analyst:	PAP	D	ilution:	: 1		***************************************
1,1,1-TRICHLOROETHANE	<	5.00	U	5,00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHAN	E <	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	Ü	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5,00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5,00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	Ū	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5.00	U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5,00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM		36.5		5.00	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
CYCLOHEXANE	<	5.00	U	5.00	ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	IJ	5.00	ug/l	



LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

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Certificate of Analysis

Client ID: **D12-11-25** Sample ID: L12090513-05 Date Collected: 09/05/2012 0925

Date Received : 09/05/2012

Parameter			Result	Qua1	RDL	Units	
POWER DENGENIE		<	5.00	Ū	5.00	ug/l	
ETHYLBENZENE		<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE		<	10.0	U	10.0	ug/l	
METHYL ACETATE		<	5.00	U	5.00	ug/l	
METHYL-TERT-BUTYL ETHER		<	5.00	Ū	5.00	ug/l	
METHYLCYCLOHEXANE		<	5.00	U	5.00	ug/1	
METHYLENE CHLORIDE		<	5.00	U	5.00	ug/l	
STYRENE			5.00	U	5.00	ug/l	
TETRACHLOROETHENE		< <	5.00	U	5.00	ug/l	
TOLUENE			5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE		<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE		<	5.00	U	5.00	ug/l	
TRICHLOROETHENE		<		U	5.00	ug/l	
TRICHLOROFLUOROMETHANE		<	5.00	Ū	10.0	ug/l	
VINYL ACETATE		<	10.0	Ū	10.0	ug/l	
VINYL CHLORIDE		<	10.0	Ū	5.00	ug/l	
XYLENE (TOTAL)		<	5.00		(74-140)	ug/1	
Surr: 1,2-DICHLOROETHANE-D4			114		(77-133)		
Surr: BROMOFLUOROBENZENE			111	-	•		
Surr: TOLUENE-D8			109	ह	(77-131)		
et Chemistry							
PA 353.2							
Date/Time: 09/12/2012 1409	Analyst:	LES		Diluti			
NITRATE + NITRITE NITROGEN	(AS N)		1.03		0.0400	mg/l	
1 2320B							
Date/Time: 09/06/2012 1610	Analyst:	CDC		Diluti			
ALKALINITY, TOTAL			14.9		1.00	mg/l	
ENDPOINT PH			4.18			su	
M 4500-S2-D							
Date/Time: 09/10/2012 1546	Analyst:	CDC		Diluti			
SULFIDE, TOTAL		<	0.0500	U	0.0500	mg/l	
W846 9056A							
Date/Time: 09/12/2012 2055	Analyst:	CDC		Diluti			
SULFATE		<	1.00	U	1.00	mg/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

Page 15 of 45 Report ID: AK2003

Certificate of Analysis

Client ID: TRIP BLANK

Sample ID: L12090513-06

Date Collected:

Date Received : 09/05/2012

Units Result RDLParameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

ate/Time: 09/06/2012 1032 Analyst: F	AP	D	ilution	; 1	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0 ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00 ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00 ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00 ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
2-BUTANONE	<	10.0	U	$10.0 ext{ ug/l}$	
2-HEXANONE	<	10.0	U	10.0 ug/ 1	
4-METHYL-2-PENTANONE	<	5.00	U	5.00 ug/l	
ACETONE	<	10.0	U	10.0 ug/l	
BENZENE	<	5.00	U	5.00 ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00 ug/l	
BROMOFORM	<	5.00	U	5.00 ug/l	
BROMOMETHANE	<	10.0	U	10.0 ug/l	
CARBON DISULFIDE	<	5.00	U	5.00 ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00 ug/l	
CHLOROBENZENE	<	5.00	U	5.00 ug/l	
CHLOROETHANE	<	10.0	U	10.0 ug/l	
CHLOROFORM	<	5.00	U	5.00 ug/l	
CHLOROMETHANE	<	10.0	U	10.0 ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00 ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00 ug/l	
CYCLOHEXANE	<	5.00	U	5.00 ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5.00 ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00 ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

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Certificate of Analysis

Client ID: TRIP BLANK

Date Collected:

Sample ID: L12090513-06

Date Received : 09/05/2012

Parameter		Result	Qual	RDL	Units
ETHYLBENZENE	<	5,00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	Ŭ	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	Ū	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	Ū	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	Ū	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	Ŭ	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		111	왕	(74-140)	
Surr: BROMOFLUOROBENZENE		109	%	(77-133)	
Surr: TOLUENE-D8		108	용	(77-131)	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

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QC Summary Data



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

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QC Batch Report - Batch Sample List

WorkGroup : WG63127 Description: VO/89260/TCL Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12090513-01	D12-10-29	1		09/06/2012 1058	PAP	1
L12090513-01	D12-10-29	2		09/06/2012 1401	PAP	10
L12090513-02	D12-10-29-A	1		09/06/2012 1124	PAP	1
L12090513-02	D12-10-29-A	2		09/06/2012 1426	PAP	10
L12090513-03	D12-12-39	1		09/06/2012 1335	PAP	1
L12090513-04	D12-12-49	1		09/06/2012 1216	PAP	1
L12090513-05	D12-11-25	1		09/06/2012 1242	PAP	1
L12090513-06	TRIP BLANK	1		09/06/2012 1032	PAP	1
MB63127:1	Method Blank	1		09/06/2012 1006	PAP	1
LCS63127:1	Laboratory Control Spike	1		09/06/2012 1544	PAP	1
MS12090513-05:63127	Matrix Spike	1		09/06/2012 1452	PAP	1
MSD12090513-05:63127	Matrix Spike Duplicate	1		09/06/2012 1518	PAP	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

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QC Batch Report - Surrogates % Recovery

WorkGroup: WG63127

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DCA	BFB	TOL
		74-140	77-133	77-131
L12090513-01	09/06/2012 1058	110	107	108
L12090513-01	09/06/2012 1401	115	107	109
L12090513-02	09/06/2012 1124	110	108	108
L12090513-02	09/06/2012 1426	112	106	106
L12090513-03	09/06/2012 1335	112	106	108
L12090513-04	09/06/2012 1216	112	109	108
L12090513-05	09/06/2012 1242	114	111	109
L12090513-06	09/06/2012 1032	111	109	108
MB63127:1	09/06/2012 1006	109	110	107
LCS63127:1	09/06/2012 1544	112	111	107
MS12090513-05:63127	09/06/2012 1452	116	110	109
MSD12090513-05:63127	09/06/2012 1518	114	112	110

DCA - 1,2-DICHLOROETHANE-D4

BFB - BROMOFLUOROBENZENE

TOL - TOLUENE-D8



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : September 20, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63127
Blank : MB63127:1

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

e/Time: 09/06/2012 1006 Analyst:	PAP	Dilu	tion: 1	
,1,1-TRICHLOROETHANE	<	5.00 U	5.00	ug/l
,1,2,2-TETRACHLOROETHANE	<	5.00 U	5,00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00 U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00 U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00 U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00	ug/l
1,2-DIBROMOETHANE	<	5,00 U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00 U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00 U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
2-BUTANONE	<	10.0 U	10.0	ug/l
2-HEXANONE	<	10.0 U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00 U	5.00	ug/l
ACETONE	<	10.0 U	10.0	ug/l
BENZENE	<	5.00 U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00 U	5.00	ug/l
BROMOFORM	<	5.00 U	5.00	ug/l
BROMOMETHANE	<	10.0 U	10.0	ug/l
CARBON DISULFIDE	<	5.00 U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00 U	5.00	ug/l
CHLOROBENZENE	<	5.00 U	5.00	ug/l
CHLOROETHANE	<	10.0 U	10.0	ug/l
CHLOROFORM	<	5.00 U	5.00	ug/l
CHLOROMETHANE	<	10.0 U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00 U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63127 Blank : MB63127:1

Parameter		Result	Qual	RDL	Units
Falameter					
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1, 2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		109	응	(74-140)	
Surr: BROMOFLUOROBENZENE		110	용	(77-133)	
Surr: TOLUENE-D8		107	응	(77-131)	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63127

MS/MSD : MS12090513-05:63127

MSD12090513-05:63127

: GW/ChemW Matrix

Prep Method

Analtyical Method: SW846 8260B

	Spike	Sample	MS		MS	Limits
Parameter	Added	Conc	Conc	Units	%REC	%REC
1,1,1-TRICHLOROETHANE	50.00	< 5.00	53,27	ug/l	107	75-121
1,1,2,2-TETRACHLOROETHANE	50.00	< 5.00	50.63	ug/l	101	78-114
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	< 10.00	50.77	ug/l	102	64-130
1,1,2-TRICHLOROETHANE	50.00	< 5.00	49.91	ug/l	100	78-113
1,1-DICHLOROETHANE	50.00	< 5.00	52.70	ug/l	105	76-116
1,1-DICHLOROETHENE	50.00	< 5.00	52.15	ug/l	104	71-127
1,2,3-TRICHLOROBENZENE	50.00	< 5.00	49.79	ug/l	100	75-112
1,2,4~TRICHLOROBENZENE	50.00	< 5.00	50.71	ug/l	101	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	< 5.00	51.94	ug/l	104	73-124
1,2-DIBROMOETHANE	50.00	< 5,00	49.64	ug/l	99	79-114
1,2-DICHLOROBENZENE	50.00	< 5.00	48.67	ug/l	97	76-109
1,2-DICHLOROETHANE	50,00	< 5.00	52.04	ug/l	104	74-122
1,2-DICHLOROPROPANE	50.00	< 5.00	50.54	ug/l	101	79-113
1,3-DICHLOROBENZENE	50.00	< 5.00	49.44	ug/l	99	69-118
1,4-DICHLOROBENZENE	50.00	< 5.00	48.76	ug/l	98	74-108
2-BUTANONE	50.00	< 10.00	54.83	ug/l	110	68-134
2-HEXANONE	50.00	< 10.00	53.23	ug/l	106	70-133
4-METHYL-2-PENTANONE	50.00	< 5.00	52.96	ug/l	106	69-135
ACETONE	50.00	< 10.00	64.69	ug/l	129	64-149
BENZENE	50.00	< 5.00	50.46	ug/l	101	77-114
BROMODICHLOROMETHANE	50.00	< 5.00	51.21	ug/l	102	76-123
BROMOFORM	50.00	< 5.00	51,77	ug/l	104	74-124
BROMOMETHANE	50.00	< 10.00	47.86	ug/l	96	64-121
CARBON DISULFIDE	50.00	< 5.00	44.08	ug/l	88	59-124
CARBON TETRACHLORIDE	50.00	< 5.00	53.90	ug/l	108	72-126
CHLOROBENZENE	50.00	< 5.00	49.27	ug/l	99	74-113
CHLOROETHANE	50.00	< 10.00	47.28	ug/l	95	71-121
CHLOROFORM	50.00	36.49	88,93	ug/l	105	76-119
CHLOROMETHANE	50.00	< 10.00	51.42	ug/l	103	59-123
CIS-1,2-DICHLOROETHENE	50.00	< 5.00	54.26	ug/l	109	74-118
CIS-1,3-DICHLOROPROPENE	50.00	< 5.00	53.59	ug/l	107	83-125
CYCLOHEXANE	50.00	< 5.00	54.01	ug/l	108	59-126
DIBROMOCHLOROMETHANE	50.00	< 5.00	51.87	ug/l	104	77-121
DICHLORODIFLUOROMETHANE	50.00	< 5.00	61.17	ug/l	122	53-141
ETHYLBENZENE	50.00	< 5.00	50.01	ug/l	100	70-130
ISOPROPYL BENZENE	50.00	< 5.00	51.21	ug/l	102	74-114
METHYL ACETATE	50.00	< 10.00	52,67	ug/l	105	68-122
METHYL-TERT-BUTYL ETHER	50.00	< 5.00	51.19	ug/l	102	74-119



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63127

MS/MSD : MS12090513-05:63127

MSD12090513-05:63127

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	Sample	MS		MS	Limits
Parameter	Added	Conc	Conc	Units	%REC	%REC
METHYLCYCLOHEXANE	50.00	< 5.00	51.38	ug/l	103	61-126
METHYLENE CHLORIDE	50.00	< 5.00	52.32	ug/l	105	71-115
STYRENE	50.00	< 5.00	50.52	ug/l	101	75-116
TETRACHLOROETHENE	50.00	< 5.00	49.83	ug/l	100	69-121
TOLUENE	50.00	< 5.00	50.39	ug/l	101	74-115
TRANS-1,2-DICHLOROETHENE	50.00	< 5.00	49.63	ug/l	99	74-119
TRANS-1,3-DICHLOROPROPENE	50.00	< 5.00	48.57	ug/l	97	73-112
TRICHLOROETHENE	50.00	< 5.00	49.65	ug/l	99	74-120
TRICHLOROFLUOROMETHANE	50.00	< 5.00	53.28	ug/l	107	70-134
VINYL ACETATE	50.00	< 10.00	52.72	ug/l	105	59-146
VINYL CHLORIDE	50.00	< 10.00	53,87	ug/l	108	63-124
XYLENE (TOTAL)	150.0	< 5.00	150.6	ug/l	100	73-116

	Spike	MSD		MSD		Limit	9
Parameter	Added	Conc	Units	%REC	%RPD	%RPD	%REC
1,1,1-TRICHLOROETHANE	50.00	51,21	ug/l	102	4	16	75-121
1,1,2,2-TETRACHLOROETHANE	50.00	49.46	ug/l	99	2	18	78-114
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	47.63	ug/l	95	6	18	64-130
1,1,2-TRICHLOROETHANE	50.00	48.70	ug/l	97	2	14	78-113
1,1-DICHLOROETHANE	50.00	50.12	ug/l	100	5	15	76-116
1,1-DICHLOROETHENE	50.00	49.67	ug/l	99	5	16	71-127
1,2,3-TRICHLOROBENZENE	50.00	48.54	ug/l	97	3	20	75-112
1,2,4-TRICHLOROBENZENE	50.00	49.40	ug/l	99	3	18	76-114
1.2-DIBROMO-3-CHLOROPROPANE	50.00	49.57	ug/l	99	5	20	73-124
1,2-DIBROMOETHANE	50.00	47.70	ug/l	95	4	16	79-114
1,2-DICHLOROBENZENE	50.00	47.52	ug/l	95	2	15	76-109
1.2-DICHLOROETHANE	50.00	49.77	ug/l	100	4	16	74-122
1.2-DICHLOROPROPANE	50.00	49.10	ug/l	98	3	15	79-113
1,3-DICHLOROBENZENE	50.00	48.01	ug/l	96	3	17	69-118
1,4-DICHLOROBENZENE	50.00	47.85	ug/l	96	2	16	74-108
2-BUTANONE	50.00	50.47	ug/l	101	8	20	68-134
2-HEXANONE	50.00	51.19	ug/l	102	4	20	70-133
4-METHYL-2-PENTANONE	50.00	51.02	ug/l	102	4	19	69-135
ACETONE	50.00	55.29	ug/l	111	16	23	64-149
BENZENE	50.00	49.44	ug/l	99	2	15	77-114
BROMODICHLOROMETHANE	50.00	49.35	ug/l	99	4	16	76-123
BROMOFORM	50.00	50.56	ug/l	101	2	17	74-124
BROMOMETHANE	50.00	46.66	ug/l	93	3	22	64-121



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63127

MS/MSD : MS12090513-05:63127

MSD12090513-05:63127

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	MSD		MSD		Limit	Limits		
Parameter	Added	Conc	Units	%REC	%RPD	%RPD	%REC		
CARBON DISULFIDE	50.00	42.54	ug/l	85	4	21	59-124		
CARBON TETRACHLORIDE	50.00	52.32	ug/l	105	3	18	72-126		
CHLOROBENZENE	50.00	48.09	ug/l	96	2	15	74-113		
CHLOROETHANE	50.00	45,60	ug/l	91	4	17	71-121		
CHLOROFORM	50.00	90.50	ug/l	108	2	14	76-119		
CHLOROMETHANE	50.00	48.71	ug/l	97	5	18	59-123		
CIS-1,2-DICHLOROETHENE	50.00	52.82	ug/l	106	3	15	74-118		
CIS-1,3-DICHLOROPROPENE	50.00	52.74	ug/l	105	2	16	83-125		
CYCLOHEXANE	50.00	51.24	ug/l	102	5	17	59-126		
DIBROMOCHLOROMETHANE	50.00	50.44	ug/l	101	3	16	77-121		
DICHLORODIFLUOROMETHANE	50.00	56.76	ug/l	114	7	20	53-141		
ETHYLBENZENE	50.00	48.94	ug/l	98	2	20	70-130		
ISOPROPYL BENZENE	50.00	49.67	ug/l	99	3	17	74-114		
METHYL ACETATE	50.00	49.50	ug/l	99	6	19	68-122		
METHYL-TERT-BUTYL ETHER	50.00	48.96	ug/l	98	4	16	74-119		
METHYLCYCLOHEXANE	50.00	50.07	ug/l	100	3	16	61-126		
METHYLENE CHLORIDE	50.00	49.56	ug/l	99	5	17	71-115		
STYRENE	50.00	49.04	ug/l	98	3	17	75-116		
TETRACHLOROETHENE	50.00	49.23	ug/l	98	1	16	69-121		
TOLUENE	50.00	49.13	ug/l	98	3	15	74-115		
TRANS-1,2-DICHLOROETHENE	50.00	48.60	ug/l	97	2	16	74-119		
TRANS-1,3-DICHLOROPROPENE	50.00	46.73	ug/l	93	4	16	73-112		
TRICHLOROETHENE	50.00	49.41	ug/l	99	0	15	74-120		
TRICHLOROFLUOROMETHANE	50.00	51.07	ug/l	102	4	18	70-134		
VINYL ACETATE	50.00	49.88	ug/l	100	6	19	59- 1 46		
VINYL CHLORIDE	50,00	51.86	ug/l	104	4	16	63-124		
XYLENE (TOTAL)	150.0	145.9	ug/l	97	3	17	73-116		

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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Client : AECOM

1455 OLD ALABAMA RD.

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Contact : BRYON DAHLGREN

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63127 : LCS63127:1 LCS

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

						400000
	Spike	LCS		LCS	Limits	
Parameter	Added	Conc	Units	%REC	%REC	488868
1,1,1-TRICHLOROETHANE	50.00	48.85	ug/l	98	76-120	
1,1,2,2-TETRACHLOROETHANE	50.00	47.89	ug/l	96	78-116	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	45.64	ug/l	91	65-125	
1,1,2-TRICHLOROETHANE	50.00	46.30	ug/l	93	78-117	
1,1-DICHLOROETHANE	50.00	48.19	ug/l	96	75-117	
1,1-DICHLOROETHENE	50.00	47.51	ug/l	95	72-125	
1,2,3-TRICHLOROBENZENE	50.00	47.78	ug/l	96	75-113	
1,2,4-TRICHLOROBENZENE	50.00	48.10	ug/l	96	76-114	
1,2-DIBROMO-3-CHLOROPROPANE	50.00	49.92	ug/l	100	77-122	
1,2-DIBROMOETHANE	50.00	46.24	ug/l	92	80-116	
1,2-DICHLOROBENZENE	50.00	46.42	ug/l	93	76-110	
1,2-DICHLOROETHANE	50.00	48,01	ug/l	96	75-121	
1,2-DICHLOROPROPANE	50.00	47,48	ug/l	95	79-115	
1,3-DICHLOROBENZENE	50.00	46.64	ug/l	93	74-113	
1,4-DICHLOROBENZENE	50,00	46.44	ug/l	93	74-109	
2-BUTANONE	50.00	51.88	ug/l	104	72-129	
2-HEXANONE	50.00	51.50	ug/l	103	73-132	
4-METHYL-2-PENTANONE	50.00	51.01	ug/l	102	75-131	
ACETONE	50.00	55.92	ug/l	112	70-138	
BENZENE	50.00	47.03	ug/l	94	77-116	
BROMODICHLOROMETHANE	50.00	47.50	ug/l	95	79-120	
BROMOFORM	50.00	48.82	ug/l	98	79-121	
BROMOMETHANE	50.00	45.39	ug/l	91	67-122	
CARBON DISULFIDE	50.00	41.52	ug/l	83	59-125	
CARBON TETRACHLORIDE	50.00	49.43	ug/l	99	74-124	
CHLOROBENZENE	50.00	46.27	ug/l	93	75-113	
CHLOROETHANE	50.00	43.08	ug/l	86	73-120	
CHLOROFORM	50.00	48.77	ug/l	98	75-121	
CHLOROMETHANE	50.00	45.31	ug/l	91	60-122	
CIS-1,2-DICHLOROETHENE	50.00	47.31	ug/l	95	74-119	
CIS-1,3-DICHLOROPROPENE	50.00	49.55	ug/l	99	83-126	
CYCLOHEXANE	50.00	46.61	ug/l	93	60-123	
DIBROMOCHLOROMETHANE	50.00	47.78	ug/l	96	779-121	
DICHLORODIFLUOROMETHANE	50.00	52.84	ug/l	106	55-139	
ETHYLBENZENE	50.00	46.76	ug/l	94	70-130	
ISOPROPYL BENZENE	50.00	47.92	ug/l	96	74-113	
METHYL ACETATE	50.00	48.42	ug/l	97	67-123	
METHYL-TERT-BUTYL ETHER	50.00	47.14	ug/l	94	75-120	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63127 LCS : LCS63127:1 Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	LCS		LCS	Limits
Parameter	Added	Conc	Units	%REC	%REC
METHYLCYCLOHEXANE	50.00	47,15	ug/l	94	62-123
METHYLENE CHLORIDE	50.00	49.73	ug/l	99	70-120
STYRENE	50.00	47.41	ug/l	95	78-113
TETRACHLOROETHENE	50.00	46.70	ug/l	93	70-120
TOLUENE	50.00	46.86	ug/1	94	75-116
TRANS-1,2-DICHLOROETHENE	50.00	46.60	ug/l	93	73-121
TRANS-1,3-DICHLOROPROPENE	50.00	45.07	ug/l	90	73-114
TRICHLOROETHENE	50.00	46.52	ug/l	93	75-119
TRICHLOROFLUOROMETHANE	50.00	47.98	ug/l	96	71-128
VINYL ACETATE	50.00	49.42	ug/l	99	65-142
VINYL CHLORIDE	50.00	49.20	ug/l	98	64-122
XYLENE (TOTAL)	150.0	140.0	ug/l	93	73-116



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

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ROSWELL, GA 30076

GREEN Bace 27 of

Contact : BRYON DAHLGREN Pa

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QC Batch Report - Batch Sample List

WorkGroup : WG63169
Description: WC/NO3NO2

Matrix :

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12090513-01	D12-10-29	1		09/12/2012 1359	LES	2
L12090513-01	D12-10-29-A	1		09/12/2012 1401	LES	2
1,12090513-03	D12-12-39	1		09/12/2012 1404	LES	2
L12090513-04	D12-12-49	1		09/12/2012 1406	LES	2
L12090513-05	D12-11-25	1		09/12/2012 1409	LES	2
MB63169:1	Method Blank	1		09/12/2012 1354	LES	1
T.CS63169:1	Laboratory Control Spike	1		09/12/2012 1347	LES	1
MS12091001-01:63169	Matrix Spike	1		09/12/2012 1413	LES	2
MS12091201-04:63169	Matrix Spike	1		09/12/2012 1450	LES	2
MSD12091001-01:63169	Matrix Spike Duplicate	1		09/12/2012 1416	LES	2
MSD12091201-04:63169	Matrix Spike Duplicate	1		09/12/2012 1452	LES	



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QC Batch Report - Method Blanks

WorkGroup: WG63169 : MB63169:1 Blank

Result Qual Parameter

Matrix : GW/ChemW

Wet Chemistry

EPA 353.2

Date/Time: 09/12/2012 1354 Analyst: LES Dilution: 1 0.0200 mg/l 0.0200 U NITRATE + NITRITE NITROGEN (AS N) <

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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63169

MS/MSD : MS12091001-01:63169

MSD12091001-01:63169

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

	Spike	Sample	MS		MS	Limits	
Parameter	Added	Conc	Conc	Units	%REC	%REC	
NITRATE + NITRITE NITROGEN (AS N)	1.00	1.75	2.76	mg/l	100	90-110	
	Spike	MSD		MSD		Limits	
Parameter	Added	Conc	Units	%REC	%RPD	%RPD %REC	
NITRATE + NITRITE NITROGEN (AS N)	1.00	2.74	mg/l	99	1	10 90-11	0

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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Client : AECOM

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SUITE 170

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Contact : BRYON DAHLGREN

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63169

MS/MSD : MS12091201-04:63169

MSD12091201-04:63169

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %rec	Limits %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	1.78	2.89	mg/l	110	90-110
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	2.87	mg/l	109	1	10 90-110

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

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Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63169

LCS : LCS63169:1 Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

					Limits	
				LCS		
	Spike	LCS				
					%REC	
		Conc		%REC		
	Added					
Parameter						
					90-110	
	0.500	0.484	mg/l	97		
NITRATE + NITRITE NITROGEN (AS N)						



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Contact : BRYON DAHLGREN

Report Date : September 20, 2012 Page 32 of 45 Report ID: AK2003

QC Batch Report - Batch Sample List

WorkGroup : WG63143
Description: Alkalinity

Matrix : GW/ChemW

Prep Method

Analtyical Method: SM 2320B

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
Ti12090513-01	D12-10-29	1		09/06/2012 1434	CDC	1
L12090513-01	D12-10-29-A	1		09/06/2012 1443	CDC	1
L12090513-03	D12-12-39	1		09/06/2012 1502	CDC	1
T-12090513-04	D12-12-49	1		09/06/2012 1549	CDC	1
T-12090513-05	D12-11-25	1		09/06/2012 1610	CDC	1
D12083001-01:63143	Duplicate	1		09/06/2012 1128	CDC	1
D12090513-01:63143	Duplicate	1		09/06/2012 1618	CDC	1
MB63143:1	Method Blank	1		09/06/2012 1040	CDC	1
LCS63143:1	Laboratory Control Spike	1		09/06/2012 1052	CDC	1



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Contact : BRYON DAHLGREN

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QC Batch Report - Method Blanks

WorkGroup: WG63143
Blank : MB63143:1

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Wet Chemistry

SM 2320B

 Date/Time:
 09/06/2012 1040
 Analyst:
 CDC
 Dilution:
 1

 ALKALINITY,
 TOTAL
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 1.00
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 1.00
 mg/l

 ENDPOINT PH
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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63143

: LCS63143:1 LCS

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Spike Added	LCS Conc	Units	LCS %REC	Limits %rEC	
ALKALINITY, TOTAL	1000	1045	mg/l	104	90-110	



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QC Batch Report - Sample Duplicates

WorkGroup: WG63143

Duplicate: D12083001-01:63143

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter		DUP Conc	RDL	Units		RPD
ALKALINITY, TOTAL	93.53	101.5	2.00	mg/l	8	1.0

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



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QC Batch Report - Sample Duplicates

WorkGroup: WG63143

Duplicate: D12090513-01:63143

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	pambre	DUP Conc	RDL	Units	RPD %RPD
ALKALINITY, TOTAL	3.48	3.48	1.00	mg/l	10

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



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Contact : BRYON DAHLGREN

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QC Batch Report - Batch Sample List

WorkGroup : WG63176
Description: Sulfide-GW

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

			PREP	ANALYT	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date	Time	Analyst	Dilution
L12090513-01	D12-10-29	1		09/10/2012	1542	CDC	1
L12090513-02	D12-10-29-A	1		09/10/2012	1543	CDC	1
L12090513~03	D12-12-39	1		09/10/2012	1544	CDC	1
L12090513-04	D12-12-49	1		09/10/2012	1545	CDC	3
T-12090513-05	D12-11-25	1		09/10/2012	1546	CDC	3
MB63176:1	Method Blank	1		09/10/2012	1554	CDC	1
LCS63176:1	Laboratory Control Spike	1		09/10/2012	1540	CDC	1
MS12091001-01:63176	Matrix Spike	1		09/10/2012	1551	CDC	1
MS12091001-13:63176	Matrix Spike	1		09/10/2012	1604	CDC	=
MSD12091001-01:63176	Matrix Spike Duplicate	1		09/10/2012	1552	CDC	:
MSD12091001-13:63176	Matrix Spike Duplicate	1		09/10/2012	1605	CDC	:



SC Certification Number: 24110001

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Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Method Blanks

WorkGroup: WG63176 Blank : MB63176:1

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Wet Chemistry

SM 4500-S2-D

Date/Time: 09/10/2012 1554 Analyst: CDC Dilution: 1

SULFIDE, TOTAL < 0.0500 U 0.0500 mg/l



SC Certification Number: 24110001

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63176

MS/MSD : MS12091001-01:63176

MSD12091001-01:63176

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
SULFIDE, TOTAL	0.500	< 0.0500	0.482	mg/l	96	81-121
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
SULFIDE, TOTAL	0.500	0.491	mg/l	98	2	10 81-121

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63176

MS/MSD : MS12091001-13:63176

MSD12091001-13:63176

Matrix : GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
SULFIDE, TOTAL	0.500	< 0.0500	0.517	mg/l	103	81-121
	Spike	MSD		MSD		Limits %RPD %REC
Parameter SULFIDE, TOTAL	Added 0.500	Conc 0.511	Units mg/l	%REC 102	%RPD 1	10 81-121

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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Client : AECOM

1455 OLD ALABAMA RD.

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Contact : BRYON DAHLGREN

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63176

LCS : LCS63176:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added				Limits %REC
SULFIDE, TOTAL	0.500	0.520	mg/l	104	90-110



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

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ROSWELL, GA 30076 Report

Contact : BRYON DAHLGREN

Report Date : September 20, 2012 Page 42 of 45 Report ID: AK2003

QC Batch Report - Batch Sample List

WorkGroup : WG63172 Description: IC-GW Matrix : GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
					ana	1
L12090513-01	D12-10-29	1		09/12/2012 1752	CDC	1
L12090513-02	D12-10-29-A	1		09/12/2012 1822	CDC	1
L12090513-03	D12-12-39	1		09/12/2012 1954	CDC	1
L12090513-04	D12-12-49	1		09/12/2012 2024	CDC	1
T-12090513-05	D12-11-25	1		09/12/2012 2055	CDC	1
MB63172:1	Method Blank	1		09/12/2012 1110	CDC	1
LCS63172:1	Laboratory Control Spike	1		09/12/2012 1140	CDC	1
MS12091001-01:63172	Matrix Spike	1		09/12/2012 2156	CDC	1
MSD12091001-01:63172	Matrix Spike Duplicate	1		09/12/2012 2226	CDC	1



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : September 20, 2012

Page 43 of 45 Report ID: AK2003

QC Batch Report - Method Blanks

WorkGroup: WG63172 Blank : MB63172:1

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Wet Chemistry SW846 9056A

 Date/Time:
 09/12/2012
 1110
 Analyst:
 CDC
 Dilution:
 1

 SULFATE
 <</td>
 1.00
 U
 1.00
 mg/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

Page 44 of 45 Report ID: AK2003

QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63172

MS/MSD : MS12091001-01:63172

MSD12091001-01:63172

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
SULFATE	10.00	< 1.00	9.84	mg/l	98	80-120
	Spike	MSD		MSD		Limits
Parameter	Added	Conc	Units	%REC	%RPD	%RPD %REC 15 80-120
SULFATE	10.00	9.86	mg/l	99	0	15 60-120

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 20, 2012

Page 45 of 45 Report ID: AK2003

QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63172

: LCS63172:1 LCS

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

Parameter	Spike Added	LCS Conc	Units	LCS %REC	Limits %REC
SULFATE	10.00	9.85	mg/1	99	80-120



Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RDL PQL LOQ SQL C	Report Detection Limit Practical Quantitation Limit Limit of Quantitation Sample Quantitation Limit Degrees Communication	MDL DL LOD TIC F	Method Detection Limit Detection Limit Limit of Detection Tentatively Identified Compound Degrees Fahrenheit millioguiyalents
umhos/cm	micromhos/cm	meq	milliequivalents

su Standard Units

mg/l, mg/kg Units of concentration in milligrams per liter for liquids and milligrams per kilogram for solids. Also

referred to as Parts Per Million or "ppm".

ug/l, ug/kg Units of concentration in micrograms per liter for liquids and micrograms per kilograms for solids.

Also referred to as Parts Per Billion or "ppb".

< Less Than
> Greater Than

Solid samples (i.e. soil, sludge, and solid waste) are reported on an as received basis unless otherwise noted.

Data Qualifiers:

- **B** Analyte also detected in the method blank.
- C Amendable Cyanide is a negative value due to an unknown interference.
- F Surrogate Standard Recovery exceeds the laboratory established acceptance limits.
- J The reported result is an estimated value (eg matrix interference observed or concentration outside the quantitation range.
- N Non-target analyte. The analyte is TIC (using mass spectrometry).
- P Concentration difference between primary and confirmation columns >40%.
- Q One or more quality control criteria failed (e.g., LCS recovery, surrogate spike recovery or CCV
- U Final concentration is below the detection limit.
- * Defined in report comments.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or biological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of the material involved, the test results will be meaningless. If you have any questions regarding the proper techniques of collecting samples, please contact us. However, we cannot be held responsible for sample integrity unless sampling has been performed by a member of our staff.

REPRESENTATION AND LIMITATION OF LIABILITY — The accuracy of all analytical results for samples begins as it is received by the laboratory. Integrity of the sample begins at the time it is placed in the possession of authorized Davis & Floyd, Inc. Laboratories personnel. All other warranties, expressed or implied, are disclaimed. Liability is limited to the cost of the analysis.

Contact

Client

AECOM

Chain of Custody Record

			Chain of Custody Rec	ay kecora		Page of	
	Project / Site Location	Lab Certification	ID: SC-24110, NC-25, NELAP-	Lab Certification ID: SC-24110, NC-25, NELAP-E87633, NY-11996, TN-2923, VA-934		Office Use Only	
	061576.08	816 E. Durst A	816 E. Durst Avenue, Greenwood, SC 29649	(864) 229-4413 Fax: (864) 229-7119		Laboratory Work Request	
	Auriga - Sptbg, SC	Email: L	Email: Laboratory@davisfloyd.com	Internet : www.davisfloyd.com			
	Report To	Сору То	Reporting Requirements: [X] Standard []	Standard [] Data Package (Specify Level: 1 2 3 4) PO / Quote Number	rel: 1 2 3 4)	PO / Quote Number	70
lartford	Bryon Dahlgren		Tumaround Requirements:-⟨⟨⟨¬⟩ Standard	s:-{K} Standard [] Rush (Specify:			0
		Atmospheric Conditions	Required Parameters, Containers and		d	Special Instructions	State
		iner G	3		ecte		3

	comments	frails os	Received By Date		Relinguished By Date	2	The state of the s					- 1	7 - 18 6 7	ロアー・ソフ	012-12-49	28.717.0	012-10-29-0	\$ 01-10-29	Sample Description	NO ICE.	Mark Hartson	
		2521	Ť	12 12 12 13 13 13 13 13 13 13 13 13 13 13 13 13	Time Relinquished By					7 200.000				9/5/12/925	9/4/2/1560	—	9/4/12 1215	1212 4/4/21218	Time Date Time	Sampling Only Date Initiated Sample Collection		
			Date	2555012	Date		ENT	ER N	UMB	ER OI	= SAMI			X VI C	X Vn Vr	£ (n	X in	60 X	e Total	Composite Grab Matrix Type Number of Containers PARAMETERS	(Optional)	Rs
	Sample Chamber Temp. at Harvest Circle: C or F		Time	_	Time						The state of the s	é	7	X 8 8	キョング ショング ショング ショング ショング ショング ショング ショング シ	X X X	X X	X 入 入	A	VOC's SO4, Alkalinity Sulfide	3x40 G TFE 500 P	
rte:	Flow Measurement (Note 1) Beginning Ending	TJSQS.MC	Received in Laboratory By		Relinquished By									8	<i>Y</i>	\(\frac{\frac}}}}}}{\frac}}}}}}}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\fin}}}}}}{\frac}}}}}}}}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac}}}}}}}}{\frac{	λ	8	H	NO3/NO2 1,4-Dioxane	125 P 3x40 G TFE	included and including and incompanies and inc
not have time to	Time Note Immedit for those	0.19.6.19.11.0	Date 7		Date 7																	i reservatives (r)
rature does re adequate reach 4°C. Custody Seal:	Nate:indicate Information Immediate delivery Cooler ID (if available) in which the Month In Ince: Year No I Temp(C)	<u>E</u>	Tracking Number		Time Shipped Via														HOT Comments	Indicate any known hazards with		ed Special instructions
e Delivery: Yes Two Intact / Broken / None	P(C) #		ł	~\								6	7	0	40	O W	Ş	0	Fraction	L <i>1309051</i> :	SC	Ciata



September 27, 2012

BRYON DAHLGREN AECOM 1455 OLD ALABAMA RD. SUITE 170 ROSWELL, GA 30076

Report ID: AK2076 Page 1 of 60

Login Number

:L12091001

Project Number

:61576.08

Description

:AURIGA - SPARTANBURG, SC

Dear Bryon Dahlgren:

We are pleased to provide the enclosed analytical results for the samples received by Davis & Floyd, Inc. on September 07, 2012.

A formal Quality Assurance/Quality Control program is maintained by Davis & Floyd, which is designed to meet or exceed the ISO/IEC 17025, EPA, NELAP or other appropriate regulatory requirements. All analytical analyses for this project met QA/QC criteria and the results are within the 99% confidence interval for each method unless otherwise stated in the footnotes. This report is to be reproduced only in full.

Feel free to contact our Client Services Representative at (864) 229-4413 if further explanation of the analysis is required. Unless other arrangements have been made, samples will be disposed of or returned 14 days from the date of the report. We appreciate the opportunity to provide services to your firm.

Sincerely, DAVIS & FLOYD, INC.

Jøhn H. McCord, Jr. Laboratory Manager

This report conatins a TOTAL of _____ pages, including attachments.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Report ID: AK2076 Page 2 of 60

Certificate of Analysis Report

Sample ID	Client ID	Date Collected	Date Received	
		((1999	09/07/2012	
L12091001-01	D12-8-29 MS/MSD	09/06/2012 1220	* *	
L12091001-02	D12-6-27	09/06/2012 1435	09/07/2012	
L12091001-03	D12-5-23	09/06/2012 1530	09/07/2012	
L12091001-04	D12-9-16	09/06/2012 1630	09/07/2012	
L12091001-05	D12-9-16A	09/06/2012 1630	09/07/2012	
L12091001-06	D12-7-17	09/06/2012 1720	09/07/2012	
L12091001-07	D12-16-49	09/07/2012 0925	09/07/2012	
L12091001-08	D12-26-30	09/07/2012 1115	09/07/2012	
L12091001-09	D12-25-26	09/07/2012 1210	09/07/2012	
L12091001-10	D12-24-37	09/07/2012 1515	09/07/2012	
L12091001-11	TRIP BLANK #1	09/03/2012 0730	09/07/2012	
L12091001-12	TRIP BLANK #2	09/03/2012 0730	09/07/2012	
L12091001-13	D12-16-49A	09/07/2012 0925	09/07/2012	

This data report has been prepared and reviewed in accordance with standard operating procedures. Test results relate only to the sample tested.

Please direct any questions to your Project Manager.

Reviewed by

Laboratory Manager



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 3 of 60 Report ID: AK2076

Certificate of Analysis

Client ID: D12-8-29 MS/MSD

Sample ID: L12091001-01

Date Collected: 09/06/2012 1220

Date Received : 09/07/2012

Units Result Qual RDLParameter

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/10/2012 1229 Analyst	: PAP	D	ilution:	; 1	***************************************
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHA	NE <	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5,00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5,00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10,0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5,00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



Date/Time: 09/12/2012 2125

SW846 9056A

SULFATE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 4 of 60 Report ID: AK2076

Certificate of Analysis

Client ID: D12-8-29 MS/MSD Sample ID: L12091001-01

Date Collected: 09/06/2012 1220

Date Received : 09/07/2012

Parameter		Result	Qual	RDL	Units	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5,00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	Ü	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	ŭ	5,00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		116	%	(74-140)		
Surr: BROMOFLUOROBENZENE		109	%	(77-133)		
Surr: TOLUENE-D8		110	앙	(77-131)		
: Chemistry						
353.2						
Pate/Time: 09/12/2012 1411	Analyst: LES		Dilution	: 2	***************************************	
NITRATE + NITRITE NITROGEN		1.75		0.0400	mg/l	
2320B						
Date/Time: 09/19/2012 1047	Analyst: CDC		Dilution	: 1	***************************************	
ALKALINITY, TOTAL	<	1.00	Ū	1.00	mg/l	
ENDPOINT PH		4.16			su	
4500-S2-D						
Date/Time: 09/10/2012 1547	Analyst: CDC		Dilution	: 1	,	***

Analyst: CDC

Dilution: 1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: D12-6-27 Sample ID: L12091001-02 Date Collected: 09/06/2012 1435

Date Received : 09/07/2012

Units Result Qual RDLParameter

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/10/2012 1255 Analyst: PA	1P	D:	ilutio:	on: 1
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00 ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0 ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00 ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	Ū	5.00 ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00 ug/l
1,2-DICHLOROBENZENE	<	5.00	Ū	5.00 ug/l
1,2-DICHLOROETHANE	<	5.00	Ū	5.00 ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00 ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
2-BUTANONE	<	10.0	U	10.0 ug/l
2-HEXANONE	<	10.0	U	10.0 ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00 ug/l
ACETONE	<	10.0	U	10.0 ug/l
BENZENE	<	5.00	U	5.00 ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00 ug/l
BROMOFORM	<	5,00	U	5.00 ug/l
BROMOMETHANE	<	10.0	U	10.0 ug/l
CARBON DISULFIDE	<	5.00	U	5.00 ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00 ug/l
CHLOROBENZENE	<	5.00	U	5.00 ug/l
CHLOROETHANE	<	10.0	U	10.0 ug/l
CHLOROFORM	<	5.00	U	5.00 ug/l
CHLOROMETHANE	<	10.0	Ū	10.0 ug/l
CIS-1,2-DICHLOROETHENE		16.2		5.00 ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00 ug/l
CYCLOHEXANE	<	5.00	U	5.00 ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00 ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00 ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 6 of 60 Report ID: AK2076

Certificate of Analysis

Client ID: D12-6-27 Sample ID: L12091001-02 Date Collected: 09/06/2012 1435

Date Received : 09/07/2012

Parameter		Result	Qual	RDL	Units
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		121	용	(74-140)	
Surr: BROMOFLUOROBENZENE		112	용	(77-133)	
Surr: TOLUENE-D8		112	÷	(77-131)	
Chemistry					
353.2					
ate/Time: 09/12/2012 1418 Analy	st: LES		Dilution:		
NITRATE + NITRITE NITROGEN (AS N)		1.01		0.0400	mg/l
2320B					
ate/Time: 09/19/2012 1100 Analy	st: CDC		Dilution:	: 1	

09/12/2012 1418	Analyst: LES		DIIUCIOII. 2		***************************************
+ NITRITE NITROGEN	(AS N)	1.01		0.0400	mg/l
09/19/2012 1100	Analyst: CDC		Dilution: 1		
TY, TOTAL		4,52		1.00	mg/l
PH		4.20			su
09/10/2012 1548	Analyst: CDC		Dilution: 1		***************************************
TOTAL		< 0.0500	ט	0.0500	mg/l
09/12/2012 2257	Analyst: CDC		Dilution: 1		
ar yang sarang gang dan kanggan kanggan karang sarang kanggan panggan kanggan kanggan kanggan banggan kanggan		< 1.00	ט י	1.00	mg/l
	+ NITRITE NITROGEN 09/19/2012 1100 TY, TOTAL PH 09/10/2012 1548 TOTAL	+ NITRITE NITROGEN (AS N) 09/19/2012 1100 Analyst: CDC TY, TOTAL PH 09/10/2012 1548 Analyst: CDC TOTAL	+ NITRITE NITROGEN (AS N) 1.01 09/19/2012 1100 Analyst: CDC TY, TOTAL 4.52 PH 4.20 09/10/2012 1548 Analyst: CDC TOTAL < 0.0500 09/12/2012 2257 Analyst: CDC	+ NITRITE NITROGEN (AS N) 1.01 09/19/2012 1100 Analyst: CDC Dilution: 1 TY, TOTAL 4.52 PH 4.20 09/10/2012 1548 Analyst: CDC Dilution: 1 TOTAL < 0.0500 U 09/12/2012 2257 Analyst: CDC Dilution: 1	+ NITRITE NITROGEN (AS N) 1.01 0.0400 09/19/2012 1100 Analyst: CDC Dilution: 1 TY, TOTAL 4.52 1.00 PH 4.20 09/10/2012 1548 Analyst: CDC Dilution: 1 TOTAL < 0.0500 U 0.0500 09/12/2012 2257 Analyst: CDC Dilution: 1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 7 of 60 Report ID: AK2076

Certificate of Analysis

Client ID: **D12-5-23** Sample ID: L12091001-03 Date Collected: 09/06/2012 1530

Date Received : 09/07/2012

Units \mathtt{RDL} Result Parameter

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/10/2012 1321 Analyst: PA	AP	Diluti	on: 1	*************************************
1,1,1-TRICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00 U	5,00 ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U	10.0 ug/l	
1,1,2-TRICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1-DICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1-DICHLOROETHENE	<	5.00 U	5.00 ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00 ug/l	
1,2-DIBROMOETHANE	<	5.00 U	5.00 ug/l	
1,2-DICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,2-DICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,2-DICHLOROPROPANE	<	5.00 U	5.00 ug/l	
1,3-DICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,4-DICHLOROBENZENE	<	5.00 U	5.00 ug/l	
2-BUTANONE	<	10.0 U	10.0 ug/l	
2-HEXANONE	<	10.0 U	10.0 ug/l	
4-METHYL-2-PENTANONE	<	5.00 U	5.00 ug/l	
ACETONE	<	10.0 U	10.0 ug/l	
BENZENE	<	5.00 U	5.00 ug/l	
BROMODICHLOROMETHANE	<	5.00 U	5.00 ug/l	
BROMOFORM	<	5.00 U	5.00 ug/l	
BROMOMETHANE	<	10.0 U	10.0 ug/l	
CARBON DISULFIDE	<	5.00 U	5.00 ug/l	
CARBON TETRACHLORIDE	<	5.00 U	5.00 ug/l	
CHLOROBENZENE	<	5.00 U	5.00 ug/l	
CHLOROETHANE	<	10.0 U	10.0 ug/l	
CHLOROFORM	<	5.00 U	5.00 ug/l	
CHLOROMETHANE	<	10.0 U	10.0 ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00 U	5.00 ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00 U	5.00 ug/l	
CYCLOHEXANE	<	5.00 U	5.00 ug/l	
DIBROMOCHLOROMETHANE	<	5.00 U	5.00 ug/l	
DICHLORODIFLUOROMETHANE	<	5.00 U	5.00 ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: **D12-5-23** Sample ID: L12091001-03 Date Collected: 09/06/2012 1530

Date Received : 09/07/2012

Parameter		Result	Qua1	RDL	Units
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	· <	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		123	ž.	(74-140)	
Surr: BROMOFLUOROBENZENE		111	8	(77-133)	
Surr: TOLUENE-D8		112	à ·	(77-131)	
te/Time: 09/11/2012 1139	Analyst: PAP/JVB	1	oilution:	1	***********
1,4-DIOXANE	<	10.0	Ū	10.0	ug/l
Surr: 1,4-DIOXANE-D8		116	8	(61-131)	

Wet Chemistry

EPA 353,2

EPA 353,2					
Date/Time: 09/12/2012 1421	Analyst: LES	Dilution:	2		
NITRATE + NITRITE NITROGEN	(AS N)	3.44	0.0400	mg/1	
SM 2320B					
Date/Time: 09/19/2012 1106	Analyst: CDC	Dilution:	1		
ALKALINITY, TOTAL		38.2	1.00	mg/l	
ENDPOINT PH		4.49		su	
SM 4500-S2-D					
Date/Time: 09/10/2012 1549	Analyst: CDC	Dilution:	1	planted as an analysis of the first of the f	\$
SULFIDE, TOTAL	<	0.0500 U	0.0500	mg/l	
SW846 9056A					
Date/Time: 09/12/2012 2327	Analyst: CDC	Dilution:	1		
SULFATE	***************************************	17.3	1.00	mg/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: **D12-9-16** Sample ID: L12091001-04 Date Collected: 09/06/2012 1630

Date Received : 09/07/2012

Parameter

Result

 \mathtt{RDL}

Units

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/10/2012 1347 Analyst: PA	AP	D	iluti	ion: 1	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0 ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00 ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	Ū	5.00 ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	Ū	5.00 ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00 ug/l	
1,3-DICHLOROBENZENE	<	5,00	U	5.00 ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
2-BUTANONE	<	10.0	U	10.0 ug/l	
2-HEXANONE	<	10.0	U	10.0 ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00 ug/l	
ACETONE	<	10.0	U	10.0 ug/l	
BENZENE	<	5.00	U	5.00 ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00 ug/l	
BROMOFORM	<	5.00	U	5.00 ug/1	
BROMOMETHANE	<	10.0	U	10.0 ug/1	
CARBON DISULFIDE	<	5.00	U	5.00 ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00 ug/1	
CHLOROBENZENE	<	5.00	U	5.00 ug/l	
CHLOROETHANE	<	10.0	U	10.0 ug/l	
CHLOROFORM		54.2		5.00 ug/l	
CHLOROMETHANE	<	10.0	U	10.0 ug/l	
CIS-1,2-DICHLOROETHENE		14.7		5.00 ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00 ug/l	
CYCLOHEXANE	<	5.00	U	5.00 ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5.00 ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00 ug/l	



Date/Time: 09/12/2012 2358

SW846 9056A

SULFATE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: D12-9-16 Sample ID: L12091001-04 Date Collected: 09/06/2012 1630

Date Received : 09/07/2012

Parameter		Result	Qual	RDL	Units	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5,00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5,00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5,00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		120	응	(74-140)		
Surr: BROMOFLUOROBENZENE		108	용	(77-133)		
Surr: TOLUENE-D8		110	용	(77-131)		
et Chemistry						
PA 353.2	Amolust, LEC		Dilutio	n: 2		
	Analyst: LES	1,52		0.0400	mg/1	
NITRATE + NITRITE NITROGEN	(A) N)	1.52		0,0200		
M 2320B	Annihingt CDC		Dilutio.	n: 1		
	Analyst: CDC	7.04		1,00	mg/l	
ALKALINITY, TOTAL		4.16		1.00	su	
ENDPOINT PH		4.10				
M 4500-S2-D	1		Dilutio	n · 1		
	Analyst: CDC	0.0500	U	0,0500	mg/1	***************************************
SULFIDE, TOTAL	<	0.0500	U	0,0300		

Analyst: CDC

Dilution: 1

1.00 U



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: D12-9-16A

Sample ID: L12091001-05

Date Collected: 09/06/2012 1630

Date Received : 09/07/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/10/2012 1444 Analyst: PA	AP	D	ilution	1: 1		
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5,00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5.00	U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5,00	U	5.00	ug/l	
BROMOFORM	<	5,00	Ū	5.00	ug/l	
BROMOMETHANE	<	10,0	Ū	10.0	ug/l	
CARBON DISULFIDE	<	5.00	Ū	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM		56.4		5.00	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE		15.5		5.00	ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
CYCLOHEXANE	<	5.00	U	5.00	ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: D12-9-16A Sample ID: L12091001-05 Date Collected: 09/06/2012 1630 Date Received : 09/07/2012

Parameter		Result	Qual	RDL	Units	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		122	용	(74-140)		
Surr: BROMOFLUOROBENZENE		110	용	(77-133)		
Surr: TOLUENE-D8		110	용	(77-131)		

Wet Chemistry

EPA 353.2

EPA 353.2					
Date/Time: 09/12/2012 1425	Analyst: LES		Dilution: 2		
NITRATE + NITRITE NITROGEN	(AS N)	1.51		0.0400	mg/l
SM 2320B					
Date/Time: 09/19/2012 1129	Analyst: CDC		Dilution: 1		
ALKALINITY, TOTAL		5,03		1.00	mg/l
ENDPOINT PH		4.18			su
SM 4500-S2-D					
Date/Time: 09/10/2012 1557	Analyst: CDC		Dilution: 1		***************************************
SULFIDE, TOTAL	******	< 0.0500	U	0.0500	mg/l
SW846 9056A					
Date/Time: 09/13/2012 0028	Analyst: CDC		Dilution: 1		
SULFATE		< 1.00	Ū	1.00	mg/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: **D12-7-17** Sample ID: L12091001-06 Date Collected: 09/06/2012 1720

Date Received : 09/07/2012

Units RDL Parameter Result Qual

Matrix : GW/ChemW

Volatile Organics

e/Time: 09/10/2012 1510 Analyst: P.	AP	D	ilution	: 1	***********************
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00 t	1g/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00 t	1g/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ıg/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	1g/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	1g/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ıg/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5,00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5,00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: **D12-7-17** Sample ID: L12091001-06

Date Collected: 09/06/2012 1720 Date Received : 09/07/2012

Parameter		Result	Qua1	RDL	Units	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	υ	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		122	용	(74-140)		
Surr: BROMOFLUOROBENZENE		111	8	(77-133)		
Surr: TOLUENE-D8		111	용	(77-131)		

Wet Chemistry

EPA 353.2

Date/Time:	09/12/2012 1507	Analyst:	LES		Dilution.	: 1		
NITRATE	+ NITRITE NITROGEN	N (AS N)		0.972		0.0200	mg/l	
SM 2320B								
Date/Time:	09/19/2012 1133	Analyst:	CDC		Dilution	: 1		
ALKALIN	ITY, TOTAL			4.02		1.00	mg/l	
ENDPOIN'	T PH			4.16			su	
SM 4500-S2-D								
Date/Time:	09/10/2012 1558	Analyst:	CDC		Dilution	: 1		
SULFIDE	, TOTAL		<	0.0500	U	0.0500	mg/l	
SW846 9056A								
Date/Time:	09/13/2012 0200	Analyst:	CDC		Dilution	: 1	******************************	
SULFATE	ngaginangaginda dana asaran aramangangkangkanga ang bala lahut dahat gibanah aramanga na bandan		And and the first of the first	12.6		1.00	mg/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 15 of 60 Report ID: AK2076

Certificate of Analysis

Client ID: D12-16-49 Sample ID: L12091001-07 Date Collected: 09/07/2012 0925 Date Received : 09/07/2012

Units Result Qual RDLParameter

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/10/2012 1536 Analyst: PA	P	Dilution:	1	
1,1,1-TRICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U	10.0 ug/l	
1,1,2-TRICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1-DICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1-DICHLOROETHENE	<	5.00 U	5.00 ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00 ug/l	
1,2-DIBROMOETHANE	<	5.00 U	5.00 ug/l	
1,2-DICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,2-DICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,2-DICHLOROPROPANE	<	5.00 U	5.00 ug/l	
1,3-DICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,4-DICHLOROBENZENE	<	5.00 U	5.00 ug/l	
2-BUTANONE	<	10.0 U	10.0 ug/l	
2-HEXANONE	<	10.0 U	10.0 ug/l	
4-METHYL-2-PENTANONE	<	5.00 U	5.00 ug/l	
ACETONE	<	10.0 U	10.0 ug/l	
BENZENE	<	5.00 U	5.00 ug/1	
BROMODICHLOROMETHANE	<	5.00 U	5.00 ug/l	
BROMOFORM	<	5.00 U	5.00 ug/l	
BROMOMETHANE	<	10.0 U	10.0 ug/l	
CARBON DISULFIDE	<	5.00 U	5.00 ug/l	
CARBON TETRACHLORIDE	<	5.00 U	5.00 ug/l	
CHLOROBENZENE	<	5.00 U	5.00 ug/l	
CHLOROETHANE	<	10.0 U	10.0 ug/l	
CHLOROFORM		27.8	5.00 ug/l	
CHLOROMETHANE	<	10.0 U	10.0 ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00 Ü	5.00 ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00 U	5.00 ug/l	
CYCLOHEXANE	<	5.00 U	5.00 ug/l	
DIBROMOCHLOROMETHANE	<	5.00 U	5.00 ug/l	
DICHLORODIFLUOROMETHANE	<	5.00 U	5.00 ug/l	



SW846 9056A

SULFATE

Date/Time: 09/13/2012 0231

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: D12-16-49 Sample ID: L12091001-07 Date Collected: 09/07/2012 0925

Date Received : 09/07/2012

Parameter		Result	Qua1	RDL	Units	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5,00	U	5.00	ug/l	
STYRENE	<	5.00	Ū	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	Ü	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	ΰ	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	Ü	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		120	음	(74-140)		
Surr: BROMOFLUOROBENZENE		111	용	(77-133)		
Surr: TOLUENE-D8		111	용	(77-131)		
t Chemistry						
A 353.2						
Date/Time: 09/12/2012 1509	Analyst: LES		Diluti:			
NITRATE + NITRITE NITROGEN (AS N)	8.09		0.200	mg/l	
1 2320B						
Date/Time: 09/19/2012 1145	Analyst: CDC		Diluti	on: 1	*************************************	
ALKALINITY, TOTAL		3.02		1.00	mg/l	
ENDPOINT PH		4.20			su	
1 4500-S2-D						
Date/Time: 09/10/2012 1559	Analyst: CDC		Diluti	on: 1	***************************************	
SULFIDE, TOTAL	<	0.0500	U	0.0500	mg/l	

Dilution: 1

mg/1

1.00



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 17 of 60 Report ID: AK2076

Certificate of Analysis

Client ID: D12-26-30 Sample ID: L12091001-08 Date Collected: 09/07/2012 1115

Date Received : 09/07/2012

Parameter

Result Qual \mathtt{RDL}

Units

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/10/2012 1603 Analyst: PA	Λ <i>P</i>	Dilution:	1	
1,1,1-TRICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U	10.0 ug/l	
1,1,2-TRICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1-DICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1-DICHLOROETHENE	<	5.00 U	5.00 ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00 ug/l	
1,2-DIBROMOETHANE	<	5.00 U	5.00 ug/l	
1,2-DICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,2-DICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,2-DICHLOROPROPANE	<	5.00 U	5.00 ug/l	
1,3-DICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,4-DICHLOROBENZENE	<	5.00 U	5.00 ug/l	
2-BUTANONE	<	10.0 U	10.0 ug/l	
2-HEXANONE	<	10.0 U	10.0 ug/l	
4-METHYL-2-PENTANONE	<	5.00 U	5.00 ug/l	
ACETONE	<	10.0 U	10.0 ug/l	
BENZENE	<	5.00 U	5.00 ug/l	
BROMODICHLOROMETHANE	<	5.00 U	5.00 ug/l	
BROMOFORM	<	5,00 U	5.00 ug/l	
BROMOMETHANE	<	10.0 U	10.0 ug/l	
CARBON DISULFIDE	<	5.00 U	5.00 ug/l	
CARBON TETRACHLORIDE	<	5.00 U	5.00 ug/l	
CHLOROBENZENE	<	5.00 U	5.00 ug/l	
CHLOROETHANE	<	10.0 U	10.0 ug/l	
CHLOROFORM		126	5.00 ug/l	
CHLOROMETHANE	<	10.0 U	10.0 ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00 U	5.00 ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00 U	5.00 ug/l	
CYCLOHEXANE	<	5.00 U	5.00 ug/l	
DIBROMOCHLOROMETHANE	<	5.00 U	5.00 ug/l	
DICHLORODIFLUOROMETHANE	<	5.00 U	5.00 ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: **D12-26-30** Sample ID: L12091001-08

SULFATE

Date Collected: 09/07/2012 1115

Date Received : 09/07/2012

Parameter			Result	Qual	. RDL	Units	
					E 00	/1	
ETHYLBENZENE		<	5.00	Ü	5.00	ug/l	
ISOPROPYL BENZENE		<	5.00	Ü	5.00	ug/l	
METHYL ACETATE		<	10.0	Ū	10.0	ug/l	
METHYL-TERT-BUTYL ETHER		<	5.00	Ū	5.00	ug/l	
METHYLCYCLOHEXANE		<	5.00	Ū	5.00	ug/l	
METHYLENE CHLORIDE		<	5.00	Ū	5.00	ug/l	
STYRENE		<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE		<	5.00	U	5.00	ug/l	
TOLUENE		<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE		<	5.00	U	5,00	ug/l	
TRANS-1,3-DICHLOROPROPENE		<	5.00	U	5.00	ug/l	
TRICHLOROETHENE		<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE		<	5.00	U	5.00	ug/l	
VINYL ACETATE		<	10,0	U	10.0	ug/l	
VINYL CHLORIDE		<	10.0	Ū	10.0	ug/l	
XYLENE (TOTAL)		<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4			122	용	(74-140)		
Surr: BROMOFLUOROBENZENE			111	용	(77-133)		
Surr: TOLUENE-D8			108	웅	(77-131)		
t Chemistry							
A 353.2							
Date/Time: 09/12/2012 1438	Analyst: L	ES		Dilut:	ion: 2	***************************************	**************
NITRATE + NITRITE NITROGEN	(AS N)		1.01		0.0400	mg/l	
1 2320B							
Date/Time: 09/19/2012 1203	Analyst: C	DC		Dilut.	ion: 1		
ALKALINITY, TOTAL			38.2		1.00	mg/l	
ENDPOINT PH			4.48			su	
1 4500-S2-D							
Date/Time: 09/10/2012 1600	Analyst: C	DC		Dilut.	ion: 1		***************************************
SULFIDE, TOTAL		<	0.0500	U	0.0500	mg/l	
1846 9056A							
Date/Time: 09/13/2012 0301	Analyst: C	DC		Dilut.	ion: 1	and the property of the second se	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: D12-25-26 Sample ID: L12091001-09 Date Collected: 09/07/2012 1210

Date Received : 09/07/2012

Units Result \mathtt{RDL} Parameter

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/10/2012 1629 Analyst: PA	AP	Di	lution	on: 1
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00 ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0 ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00 ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00 ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00 ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00 ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00 ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
2-BUTANONE	<	10.0	U	10.0 ug/l
2-HEXANONE	<	10.0	U	10.0 ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00 ug/l
ACETONE	<	10.0	U	10.0 ug/l
BENZENE	<	5.00	U	5.00 ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00 ug/l
BROMOFORM	<	5.00	U	5.00 ug/l
BROMOMETHANE	<	10.0	U	10.0 ug/l
CARBON DISULFIDE	<	5.00	U	5.00 ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00 ug/l
CHLOROBENZENE	<	5.00	U	5.00 ug/l
CHLOROETHANE	<	10.0	U	10.0 ug/l
CHLOROFORM	<	5.00	U	5.00 ug/l
CHLOROMETHANE	<	10.0	U	10.0 ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00 ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00 ug/l
CYCLOHEXANE	<	5.00	U	5.00 ug/1
DIBROMOCHLOROMETHANE	<	5.00	U	5.00 ug/1
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00 ug/l



SULFATE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 20 of 60 Report ID: AK2076

Certificate of Analysis

Client ID: **D12-25-26** Sample ID: L12091001-09 Date Collected: 09/07/2012 1210

Date Received : 09/07/2012

Parameter		Result	Qual	RDL	Units	
				5 00	/3	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	Ū	5.00	ug/l	
METHYL ACETATE	<	10.0	Ū	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/1	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5,00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5,00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		124	용	(74-140)		
Surr: BROMOFLUOROBENZENE		111	용	(77-133)		
Surr: TOLUENE-D8		111	왕	(77-131)		
et Chemistry						
PA 353.2						
Date/Time: 09/12/2012 1512	Analyst: LES		Dilutio.	***************************************		
NITRATE + NITRITE NITROGEN	(AS N)	0.334		0.0200	mg/l	
M 2320B						
Date/Time: 09/19/2012 1213	Analyst: CDC		Dilutio			
ALKALINITY, TOTAL		24,1		1.00	mg/l	
ENDPOINT PH		4.50			su	
M 4500-S2-D						
Date/Time: 09/10/2012 1601	Analyst: CDC		Dilutio	n: 1	••••••	
SULFIDE, TOTAL	<	0.0500	U	0.0500	mg/l	
W846 9056A						
Date/Time: 09/13/2012 0332	Analyst: CDC		Dilutio	on: 1		******************
		7 00	••	1 00	ma / 1	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: D12-24-37 Sample ID: L12091001-10 Date Collected: 09/07/2012 1515

Date Received : 09/07/2012

Units \mathtt{RDL} Result Qual Parameter

Matrix : GW/ChemW

Volatile Organics

e/Time: 09/10/2012 1655 Analyst: PA	AP	D	ilution	n: 1	
1,1,1-TRICHLOROETHANE	<	5,00	U	5.00 ug/l	
L,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0 ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00 ug/l	
1.1-DICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00 ug/l	
L,2,3-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l	
L,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00 ug/l	
L,2-DIBROMOETHANE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00 ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
2-BUTANONE	<	10.0	U	10.0 ug/l	
2-HEXANONE	<	10.0	U	10.0 ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00 ug/l	
ACETONE		20.6		10.0 ug/l	
BENZENE	<	5.00	U	5.00 ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00 ug/l	
BROMOFORM	<	5.00	U	5.00 ug/l	
BROMOMETHANE	<	10.0	U	10.0 ug/l	
CARBON DISULFIDE	<	5.00	Ŭ	5.00 ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00 ug/l	
CHLOROBENZENE	<	5.00	U	5.00 ug/l	
CHLOROETHANE	<	10.0	U	10.0 ug/l	
CHLOROFORM	<	5.00	U	5.00 ug/l	
CHLOROMETHANE	<	10.0	U	10.0 ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	Ū	5.00 ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00 ug/l	
CYCLOHEXANE	<	5.00	U	5.00 ug/l	
DIBROMOCHLOROMETHANE	<	5,00	U	5.00 ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00 ug/l	



Date/Time: 09/13/2012 0402

SULFATE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: D12-24-37 Sample ID: L12091001-10 Date Collected: 09/07/2012 1515

Date Received : 09/07/2012

Parameter		Result	Qua1	RDL	Units
					/2
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/1
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	Ü	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	Ü	5.00	ug/1
METHYLENE CHLORIDE	<	5.00	Ū	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	Ū	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	ū	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5,00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	υ	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4	1	122	용	(74-140)	
Surr: BROMOFLUOROBENZENE		108	용	(77-133)	
Surr: TOLUENE-D8		108	ક	(77-131)	
et Chemistry					
PA 353,2			Dilution	1. 7	
Date/Time: 09/12/2012 1514 NITRATE + NITRITE NITROGEN	***************************************	0.194		0.0200	mg/l
M 2320B	1+10-21/	-,			_
M 23208 Date/Time: 09/19/2012 1228	Analyst: CDC		Dilution	1: 1	
	Analyse, obe	56.8		1.00	mg/l
ALKALINITY, TOTAL		4.47			su
ENDPOINT PH		2,2/			
M 4500-S2-D	Amalerah CDC		Dilution	1, 1	
Date/Time: 09/10/2012 1602		0.0500		0.0500	mg/l
SULFIDE, TOTAL	<	0.0500	U	0,0500	5/ -
W846 9056A					

1,85

Dilution: 1

mg/1

1.00

Analyst: CDC



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 23 of 60 Report ID: AK2076

Certificate of Analysis

Client ID: TRIP BLANK #1 Sample ID: L12091001-11

Date Collected: 09/03/2012 0730

Date Received : 09/07/2012

 \mathtt{RDL} Units Result Qual Parameter

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/10/2012 1110 Analyst: PA	ı.P	Dilution: 1		***************************************
1,1,1-TRICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U	10.0 ug/l	
1,1,2-TRICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1-DICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1-DICHLOROETHENE	<	5.00 U	5.00 ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00 ug/l	
1,2-DIBROMOETHANE	<	5.00 U	5.00 ug/l	
1,2-DICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,2-DICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,2-DICHLOROPROPANE	<	5.00 U	5.00 ug/l	
1,3-DICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,4-DICHLOROBENZENE	<	5.00 U	5.00 ug/l	
2-BUTANONE	<	10.0 U	10.0 ug/l	
2-HEXANONE	<	10.0 U	10.0 ug/l	
4-METHYL-2-PENTANONE	<	5.00 U	5.00 ug/l	
ACETONE	<	10.0 U	10.0 ug/l	
BENZENE	<	5.00 U	5.00 ug/l	
BROMODICHLOROMETHANE	<	5.00 U	5.00 ug/l	
BROMOFORM	<	5.00 U	5.00 ug/l	
BROMOMETHANE	<	10.0 U	10.0 ug/l	
CARBON DISULFIDE	<	5.00 U	5.00 ug/l	
CARBON TETRACHLORIDE	<	5,00 U	5.00 ug/l	
CHLOROBENZENE	<	5.00 U	5.00 ug/l	
CHLOROETHANE	<	10.0 U	10.0 ug/l	
CHLOROFORM	<	5.00 U	5.00 ug/l	
CHLOROMETHANE	<	10.0 U	10.0 ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00 U	5.00 ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00 U	5.00 ug/l	
CYCLOHEXANE	<	5.00 U	5.00 ug/l	
DIBROMOCHLOROMETHANE	<	5.00 U	5.00 ug/l	
DICHLORODIFLUOROMETHANE	<	5.00 U	5.00 ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 24 of 60 Report ID: AK2076

Certificate of Analysis

Client ID: TRIP BLANK #1 Sample ID: L12091001-11

Date Collected: 09/03/2012 0730

Date Received: 09/07/2012

		D =1 h	Oual	RDL	Units
Parameter		Result	Quar	חתא	OHICE
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	Ū	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		115	용	(74-140)	
Surr: BROMOFLUOROBENZENE		109	음	(77-133)	
Surr: TOLUENE-D8		107	용	(77-131)	



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD. SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : September 27, 2012

Page 25 of 60 Report ID: AK2076

Certificate of Analysis

Client ID: TRIP BLANK #2

Sample ID: L12091001-12

Date Collected: 09/03/2012 0730

Date Received : 09/07/2012

Parameter

Result

Qual

RDL

Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 09/11/2012 1111

1,4-DIOXANE

Analyst: PAP/JVB Dilution: 1

<

10.0 U 10.0 ug/l

Surr: 1,4-DIOXANE-D8

117 %

(6**1**-131)



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 26 of 60 Report ID: AK2076

Certificate of Analysis

Client ID: D12-16-49A Sample ID: L12091001-13 Date Collected: 09/07/2012 0925

Date Received : 09/07/2012

Units RDLResult Qual Parameter

Matrix : GW/ChemW

Volatile Organics

e/Time: 09/10/2012 1721 Analyst: PA	.P	במ	lution	a: 1
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00 ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0 ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00 ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00 ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00 ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00 ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00 ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
2-BUTANONE	<	10.0	U	10.0 ug/l
2-HEXANONE	<	10.0	U	10.0 ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00 ug/l
ACETONE	<	10.0	U	10.0 ug/l
BENZENE	<	5.00	U	5.00 ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00 ug/l
BROMOFORM	<	5.00	U	5.00 ug/l
BROMOMETHANE	<	10.0	U	10.0 ug/l
CARBON DISULFIDE	<	5.00	U	5.00 ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00 ug/l
CHLOROBENZENE	<	5.00	U	5.00 ug/l
CHLOROETHANE	<	10.0	U	10.0 ug/l
CHLOROFORM		28.5		5.00 ug/l
CHLOROMETHANE	<	10.0	U	10.0 ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00 ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	Ū	5.00 ug/l
CYCLOHEXANE	<	5.00	U	5.00 ug/l
DIBROMOCHLOROMETHANE	<	5.00	Ü	5.00 ug/1
DICHLORODIFLUOROMETHANE	<	5.00	Ū	5.00 ug/l



SW846 9056A

SULFATE

Date/Time: 09/13/2012 0433

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 27 of 60 Report ID: AK2076

Certificate of Analysis

Client ID: D12-16-49A Sample ID: L12091001-13 Date Collected: 09/07/2012 0925

Date Received : 09/07/2012

Parameter		Result	Qual	RDL	Units	
	***	*****				
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5,00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		122	용	(74-140)		
Surr: BROMOFLUOROBENZENE		110	용	(77-133)		
Surr: TOLUENE-D8		111	&	(77-131)		
: Chemistry						
353.2						
Date/Time: 09/12/2012 1517 Analys	t: LES		Dilution	: 10		
NITRATE + NITRITE NITROGEN (AS N)		8.12		0.200	mg/l	
2320B						
Pate/Time: 09/19/2012 1409 Analys	t: CDC		Dilution	: 1		
ALKALINITY, TOTAL		4.02		1.00	mg/l	
ENDPOINT PH		4.20			su	
4500-S2-D						
Date/Time: 09/10/2012 1603 Analys	t: CDC		Dilution	: 1		
SULFIDE, TOTAL	<	0.0500	U	0.0500	mg/l	

Dilution: 1

1.00 U



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 28 of 60 Report ID: AK2076

QC Summary Data



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : September 27, 2012

Page 29 of 60 Report ID: AK2076

QC Batch Report - Batch Sample List

WorkGroup : WG63135

Matrix

: GW/ChemW

Description: VO/8260/TCL

Prep Method

Analtyical Method: SW846 8260B

			PREP Date Time	ANALYTICAL	Analyst	
Sample ID	Client ID	Run#		Date Time		Dilution
L12091001-01	D12-8-29 MS/MSD	1		09/10/2012 1229	PAP	1
L12091001-02	D12-6-27	1		09/10/2012 1255	PAP	1
L12091001-03	D12-5-23	1		09/10/2012 1321	PAP	1
L12091001-04	D12-9-16	1		09/10/2012 1347	PAP	1
L12091001-05	D12-9-16A	1		09/10/2012 1444	PAP	1
L12091001-06	D12-7-17	1		09/10/2012 1510	PAP	1
L12091001-07	D12-16-49	1		09/10/2012 1536	PAP	1
L12091001-08	D12-26-30	1		09/10/2012 1603	PAP	1
L12091001-09	D12-25-26	1		09/10/2012 1629	PAP	1
L12091001-10	D12-24-37	1		09/10/2012 1655	PAP	1
L12091001-11	TRIP BLANK #1	1		09/10/2012 1110	PAP	1
L12091001-13	D12-16-49A	1		09/10/2012 1721	PAP	1
MB63135:1	Method Blank	1		09/10/2012 0948	PAP	=
LCS63135:1	Laboratory Control Spike	1		09/10/2012 1906	PAP	3
MS12091001-01:63135	Matrix Spike	1		09/10/2012 1814	PAP	:
MSD12091001-01:63135	Matrix Spike Duplicate	1		09/10/2012 1840	PAP	=



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 30 of 60 Report ID: AK2076

QC Batch Report - Surrogates % Recovery

WorkGroup: WG63135

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DCA	BFB	TOL
		74-140	77-133	77-131
L12091001-01	09/10/2012 1229	116	109	110
L12091001-02	09/10/2012 1255	121	112	112
L12091001-03	09/10/2012 1321	123	111	112
L12091001-04	09/10/2012 1347	120	108	110
L12091001-05	09/10/2012 1444	122	110	110
L12091001-06	09/10/2012 1510	122	111	111
L12091001-07	09/10/2012 1536	120	111	111
L12091001-08	09/10/2012 1603	122	111	108
L12091001-09	09/10/2012 1629	124	111	111
L12091001-10	09/10/2012 1655	122	108	108
L12091001-11	09/10/2012 1110	115	109	107
L12091001-13	09/10/2012 1721	122	110	111
MB63135:1	09/10/2012 0948	115	108	108
LCS63135:1	09/10/2012 1906	121	112	111
MS12091001-01:63135	09/10/2012 1814	122	111	110
MSD12091001-01:63135	09/10/2012 1840	121	112	111

DCA - 1,2-DICHLOROETHANE-D4

BFB - BROMOFLUOROBENZENE

TOL - TOLUENE-D8



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63135 Blank : MB63135:1

Units Result Qual Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Time: 09/10/2012 0948 Analyst: PA	P	D	ilutior	1: 1		
1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5,00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	Ü	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	Ū	5.00	ug/l	
1,2-DIBROMOETHANE	<	5,00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5,00	U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5.00	ug/l	
CARBON TETRACHLORIDE	<	5,00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM	<	5.00	Ü	5.00	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 32 of 60 Report ID: AK2076

QC Batch Report - Method Blanks

WorkGroup: WG63135 Blank : MB63135:1

Parameter		Result	Qual	RDL	Units
					· · · · · · · · · · · · · · · · · · ·
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		115	용	(74-140)	
Surr: BROMOFLUOROBENZENE		108	े	(77-133)	
Surr: TOLUENE-D8		108	%	. (77-131)	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63135

MS/MSD : MS12091001-01:63135

MSD12091001-01:63135

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	Sample	MS		MS	Limits
Parameter	Added	Conc	Conc	Units	%REC	%REC
1,1,1-TRICHLOROETHANE	50.00	< 5.00	53.35	ug/l	107	75-121
1,1,2,2-TETRACHLOROETHANE	50.00	< 5.00	50.07	ug/l	100	78-114
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	< 10.00	48.21	ug/l	96	64-130
1,1,2-TRICHLOROETHANE	50.00	< 5.00	49.73	ug/l	99	78-113
1,1-DICHLOROETHANE	50.00	< 5.00	53.70	ug/l	107	76-116
1,1-DICHLOROETHENE	50.00	< 5.00	50.59	ug/l	101	71-127
1,2,3-TRICHLOROBENZENE	50.00	< 5.00	49.74	ug/l	99	75-112
1,2,4-TRICHLOROBENZENE	50.00	< 5.00	48.94	ug/l	98	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	< 5.00	49.24	ug/l	98	73-124
1,2-DIBROMOETHANE	50.00	< 5.00	48.50	ug/l	97	79-114
1,2-DICHLOROBENZENE	50.00	< 5.00	47.19	ug/l	94	76-109
1,2-DICHLOROETHANE	50.00	< 5.00	54.40	ug/l	109	74-122
1,2-DICHLOROPROPANE	50,00	< 5.00	50.99	ug/l	102	79-113
1,3-DICHLOROBENZENE	50.00	< 5.00	47,56	ug/l	95	69-118
1,4-DICHLOROBENZENE	50.00	< 5,00	47.26	ug/l	95	74-108
2-BUTANONE	50.00	< 10.00	52.57	ug/l	105	68-134
2-HEXANONE	50.00	< 10.00	49.57	ug/l	99	70-133
4-METHYL-2-PENTANONE	50.00	< 5.00	49.20	ug/l	98	69-135
ACETONE	50.00	< 10.00	60.92	ug/l	122	64-149
BENZENE	50,00	< 5.00	50.18	ug/l	100	77-114
BROMODICHLOROMETHANE	50.00	< 5.00	50.27	ug/l	101	76-123
BROMOFORM	50.00	< 5.00	49.44	ug/l	99	74-124
BROMOMETHANE	50.00	< 10.00	47.05	ug/l	94	64-121
CARBON DISULFIDE	50.00	< 5.00	38.76	ug/l	78	59-124
CARBON TETRACHLORIDE	50.00	< 5.00	54.68	ug/l	109	72-126
CHLOROBENZENE	50.00	< 5.00	47.68	ug/l	95	74-113
CHLOROETHANE	50.00	< 10.00	46.30	ug/l	93	71-121
CHLOROFORM	50.00	< 5.00	58.27	ug/l	117	76-119
CHLOROMETHANE	50.00	< 10.00	51.79	ug/l	104	59-123
CIS-1,2-DICHLOROETHENE	50.00	< 5.00	56.33	ug/l	113	74-118
CIS-1,3-DICHLOROPROPENE	50.00	< 5.00	53,18	ug/l	106	83-125
CYCLOHEXANE	50.00	< 5.00	51.05	ug/l	102	59-126
DIBROMOCHLOROMETHANE	50.00	< 5.00	50.41	ug/l	101	77-121
DICHLORODIFLUOROMETHANE	50.00	< 5.00	59.92	ug/l	120	53-141
ETHYLBENZENE	50.00	< 5.00	48.83	ug/l	98	70-130
ISOPROPYL BENZENE	50.00	< 5.00	49.12	ug/l	98	74-114
METHYL ACETATE	50.00	< 10.00	51.50	ug/l	103	68-122
METHYL-TERT-BUTYL ETHER	50.00	< 5.00	52.67	ug/l	105	74-119



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 34 of 60 Report ID: AK2076

QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63135

MS/MSD : MS12091001-01:63135

MSD12091001-01:63135

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	Sample	MS		MS	Limits
Parameter	Added	Conc	Conc	Units	%REC	%REC
METHYLCYCLOHEXANE	50.00	< 5.00	48.93	ug/l	98	61-126
METHYLENE CHLORIDE	50.00	< 5.00	53.20	ug/l	106	71-115
STYRENE	50.00	< 5.00	49.49	ug/l	99	75-116
ETRACHLOROETHENE	50.00	< 5.00	48.45	ug/l	97	69-121
COLUENE	50,00	< 5.00	49.80	ug/l	100	74-115
RANS-1,2-DICHLOROETHENE	50.00	< 5.00	50.53	ug/l	101	74-119
RANS-1,3-DICHLOROPROPENE	50.00	< 5.00	47.11	ug/l	94	73-112
RICHLOROETHENE	50.00	< 5.00	48.78	ug/l	98	74-120
RICHLOROFLUOROMETHANE	50.00	< 5.00	51.24	ug/l	102	70-134
INYL ACETATE	50.00	< 10.00	52.42	ug/l	105	59-146
INYL CHLORIDE	50.00	< 10.00	53.63	ug/l	107	63-124
KYLENE (TOTAL)	150.0	< 5.00	146.8	ug/l	98	73-116

	Spike	MSD		MSD		Limit	:s
Parameter	Added	Cona	Units	%REC	%RPD	%RPD	%REC
1,1,1-TRICHLOROETHANE	50.00	54.92	ug/l	110	3	16	75-121
1,1,2,2-TETRACHLOROETHANE	50.00	51.89	ug/l	104	4	18	78-114
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	49.20	ug/l	98	2	18	64-130
1,1,2-TRICHLOROETHANE	50.00	51.66	ug/l	103	4	14	78-113
1,1-DICHLOROETHANE	50,00	54.89	ug/l	110	2	15	76-116
1,1-DICHLOROETHENE	50.00	51.83	ug/l	104	2	16	71-127
1,2,3-TRICHLOROBENZENE	50.00	51.63	ug/l	103	4	20	75-112
1,2,4-TRICHLOROBENZENE	50.00	50.94	ug/l	102	4	18	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	50.38	ug/l	101	2	20	73-124
1,2-DIBROMOETHANE	50.00	49.97	ug/l	100	3	16	79-114
1,2-DICHLOROBENZENE	50.00	47.94	ug/l	96	2	15	76-109
1,2-DICHLOROETHANE	50.00	54.65	ug/l	109	0	16	74-122
1,2-DICHLOROPROPANE	50.00	51,88	ug/l	104	2	15	79-113
1,3-DICHLOROBENZENE	50.00	49,23	ug/l	98	3	17	69-118
1,4-DICHLOROBENZENE	50.00	49.54	ug/l	99	5	16	74-108
2-BUTANONE	50.00	54.14	ug/l	108	3	20	68-134
2-HEXANONE	50.00	51.41	ug/l	103	4	20	70-133
4-METHYL-2-PENTANONE	50.00	52,10	ug/l	104	6	19	69-135
ACETONE	50.00	55.95	ug/l	112	9	23	64-149
BENZENE	50.00	51.85	ug/l	104	3	15	77-114
BROMODICHLOROMETHANE	50.00	53.62	ug/l	107	6	16	76-123
BROMOFORM	50.00	51.77	ug/l	104	5	17	74-124
BROMOMETHANE	50.00	49.34	ug/l	99	5	22	64-121



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 35 of 60 Report ID: AK2076

QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63135

MS/MSD : MS12091001-01:63135

MSD12091001-01:63135

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	MSD		MSD		Limit	s
Parameter	Added	Conc	Units	%REC	%RPD	%RPD	%REC
CARBON DISULFIDE	50.00	41.27	ug/l	83	6	21	59-124
CARBON TETRACHLORIDE	50.00	55.10	ug/l	110	1	18	72-126
CHLOROBENZENE	50.00	49.39	ug/l	99	4	15	74-113
CHLOROETHANE	50.00	47.29	ug/l	95	2	17	71-121
CHLOROFORM	50.00	58.77	ug/l	118	1	14	76-119
CHLOROMETHANE	50.00	51.68	ug/l	103	0	18	59-123
CIS-1,2-DICHLOROETHENE	50.00	56.71	ug/l	113	1	15	74-118
CIS-1,3-DICHLOROPROPENE	50.00	54.91	ug/l	110	3	16	83-125
CYCLOHEXANE	50.00	52.37	ug/l	105	3	17	59-126
DIBROMOCHLOROMETHANE	50,00	52,73	ug/l	105	4	16	77-121
DICHLORODIFLUOROMETHANE	50.00	61.07	ug/l	122	2	20	53-141
ETHYLBENZENE	50.00	49.87	ug/l	100	2	20	70-130
ISOPROPYL BENZENE	50.00	50.42	ug/l	101	3	17	74-114
METHYL ACETATE	50.00	52.25	ug/l	105	1	19	68-122
METHYL-TERT-BUTYL ETHER	50.00	53.00	ug/l	106	1	16	74-119
METHYLCYCLOHEXANE	50.00	50.53	ug/l	101	3	16	61-126
METHYLENE CHLORIDE	50.00	53.88	ug/l	108	1	17	71-115
STYRENE	50.00	50.41	ug/l	10 1	2	17	75-116
TETRACHLOROETHENE	50.00	50.31	ug/l	101	4	16	69-121
TOLUENE	50.00	51.32	ug/l	103	3	15	74-115
TRANS-1,2-DICHLOROETHENE	50.00	52.18	ug/l	104	3	16	74-119
TRANS-1,3-DICHLOROPROPENE	50.00	49.36	ug/l	99	5	16	73-112
TRICHLOROETHENE	50,00	50.29	ug/l	101	3	15	74-120
TRICHLOROFLUOROMETHANE	50.00	52.56	ug/l	105	3	18	70-134
VINYL ACETATE	50.00	53.24	ug/l	106	2	19	59-146
VINYL CHLORIDE	50.00	54.06	ug/l	108	1	16	63-124
XYLENE (TOTAL)	150.0	149,1	ug/l	99	2	17	73-116

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD. SUITE 170

ROSWELL, GA 30076

Page 36 of 6

Contact : BRYON DAHLGREN

Report Date : September 27, 2012
Page 36 of 60 Report ID: AK2076

QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63135

Matrix

: GW/ChemW

LCS : LCS63135:1

Prep Method

Analtyical Method: SW846 8260B

Parameter Added Come Units Name		Spike	LCS		LCS	Limits
1,1,1-TRICHLOROETHANE	Parameter			Units	%REC	%REC
1,1,2,2-TETRACHLOROSTHANE	**************************************	Shipping south and south the		ug/l	108	76-120
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE 50.00 50.56 ug/l 101 78-117 1,1-DICHLOROETHANE 50.00 53.82 ug/l 108 75-117 1,1-DICHLOROETHANE 50.00 49.48 ug/l 99 72-125 1,2,3-TRICHLOROENZENE 50.00 49.48 ug/l 100 75-113 1,2,4-TRICHLOROENZENE 50.00 49.87 ug/l 100 76-114 1,2-DIEROMG-1-CHLOROETHANE 50.00 49.87 ug/l 100 76-114 1,2-DIEROMG-1-CHLOROETHANE 50.00 48.59 ug/l 97 77-122 1,2-DIEROMG-1-CHLOROETHANE 50.00 49.84 ug/l 100 80-116 1,2-DICHLOROETHANE 50.00 47.62 ug/l 95 76-110 1,2-DICHLOROETHANE 50.00 54.11 ug/l 108 75-121 1,2-DICHLOROETHANE 50.00 54.11 ug/l 108 75-121 1,3-DICHLOROETHANE 50.00 54.11 ug/l 108 75-121 1,3-DICHLOROETHANE 50.00 48.33 ug/l 97 74-113 1,4-DICHLOROETHANE 50.00 48.33 ug/l 97 74-113 1,4-DICHLOROETHANE 50.00 46.71 ug/l 98 72-129 2-BUTANONE 50.00 46.71 ug/l 93 73-132 4-METHYL-2-PENTANONE 50.00 51.87 ug/l 102 77-116 BENZENE 50.00 50.85 ug/l 102 77-116 BENZENE 50.00 51.87 ug/l 102 77-116 BENZENE 50.00 52.96 ug/l 104 79-120 BROMOETHANE 50.00 51.87 ug/l 104 79-120 BROMOETHANE 50.00 52.96 ug/l 106 74-124 CHLOROETHANE 50.00 52.96 ug/l 106 74-124 CHLOROETHANE 50.00 52.96 ug/l 106 74-124 CHLOROETHANE 50.00 52.96 ug/l 108 75-121 CHLOROETHANE 50.00 54.51 ug/l 108 75-121 CHLOROETHANE 50.00 54.50 ug/l 109 83-126 CHLOROETHANE 50.00 54.57 ug/l 109 83-126 CHLOROETHANE 50.00 54.57 ug/l 109 83-126 CHLOROETHANE 50.00 54.57 ug/l 109 55-139	• •		50.49	-	101	78-116
1,1,2-TRICHLOROETHANE		50.00	45.16	ug/l	90	65-125
1,1-DICHLOROETHANE			50.56	ug/l	101	78-117
1,1-DICHLOROSTHENE		50.00	53.82	ug/l	108	75-117
1,2,3-TRICHLOROBENZENE	•	50.00	49.48	ug/l	99	72-125
1,2,4-TRICHLOROBENZENE	•	50.00	50.12	ug/l	100	75-113
1,2-DIBROMO-3-CHLOROPROPANE		50.00	49.87	ug/l	100	76-114
1,2-DIEROMOETHANE 50.00 49.84 ug/1 100 80-116 1,2-DICHLOROBENZENE 50.00 47.62 ug/1 95 76-110 1,2-DICHLOROBENZENE 50.00 51.11 ug/1 108 75-121 1,2-DICHLOROBENZENE 50.00 51.22 ug/1 102 79-115 1,3-DICHLOROBENZENE 50.00 48.33 ug/1 97 74-113 1,4-DICHLOROBENZENE 50.00 48.779 ug/1 96 74-109 2-BUTANONE 50.00 48.99 ug/1 98 72-129 2-HEXANONE 50.00 46.71 ug/1 93 73-132 4-METHYLI-2-PENTANONE 50.00 46.68 ug/1 93 75-131 ACETONE 50.00 51.58 ug/1 103 70-138 BENZENE 50.00 51.58 ug/1 102 77-116 BROMODICHLOROMETHANE 50.00 51.68 ug/1 102 77-116 BROMODICHLOROMETHANE 50.00 50.85 ug/1 102 79-121 BROMOMETHANE 50.00 50.75 ug/1 102 79-121 BROMOMETHANE 50.00 48.66 ug/1 97 67-122 CARBON DISULFIDE 50.00 37.54 ug/1 75 59-125 CARBON TETRACHLORIDE 50.00 45.60 ug/1 97 67-122 CARBON TETRACHLORIDE 50.00 45.60 ug/1 97 67-122 CHLOROBENZENE 50.00 45.60 ug/1 96 75-113 CHLOROGETHANE 50.00 54.21 ug/1 106 74-124 CHLOROGENTHANE 50.00 55.57 ug/1 106 74-124 CHLOROGENTHANE 50.00 55.57 ug/1 106 67-121 CHLOROGENTHANE 50.00 55.57 ug/1 106 60-122 CHLOROGENTHANE 50.00 55.57 ug/1 107 60-122 CHLOROGENTHANE 50.00 55.57 ug/1 108 75-121 CHLOROGENTHANE 50.00 55.57 ug/1 108 75-121 CHLOROGENTHANE 50.00 50.55 ug/1 106 60-122 CIS-1,2-DICHLOROBENEE 50.00 50.55 ug/1 107 60-122 CIS-1,3-DICHLOROBENEE 50.00 50.55 ug/1 109 83-126 CYCLOHEXANE 50.00 54.57 ug/1 109 75-121 DIEROMOCHLOROMETHANE 50.00 54.57 ug/1 109 75-121 DIEROMOCHLOROMETHANE 50.00 54.57 ug/1 109 55-139 DIEROMOCHLOROMETHANE 50.00 54.57 ug/1 109 55-139 ETHYLBENZENE 50.00 48.62 ug/1 97 70-130 BETHYLBENZENE 50.00 48.61 ug/1 98 74-113 METHYL ACETATE 50.00 50.00 50.71 ug/1 98 74-113	* *	50.00	48.59	ug/l	97	77-122
1,2-DICHLOROBENZENE 50.00 47.62 ug/1 95 76-110 1,2-DICHLOROPENTANE 50.00 54.11 ug/1 108 75-121 1,2-DICHLOROPENDANE 50.00 51.22 ug/1 102 79-115 1,3-DICHLOROBENZENE 50.00 48.33 ug/1 97 74-113 1,4-DICHLOROBENZENE 50.00 47.79 ug/1 96 74-109 2-BUTANONE 50.00 48.99 ug/1 98 72-129 2-HEXANONE 50.00 46.68 ug/1 93 73-132 4-METHYL-2-PENTANONE 50.00 50.85 ug/1 102 77-116 BENZENE 50.00 51.58 ug/1 103 70-138 BENZENE 50.00 51.58 ug/1 102 77-116 BROMODICHLOROMETHANE 50.00 50.85 ug/1 102 77-116 BROMOMETHANE 50.00 50.75 ug/1 104 79-120 CARBON DISULFIDE 50.00 37.54 ug/1 75 59-125 CARBON TETRACHLORIDE 50.00 52.96 ug/1 75 59-125 CARBON TETRACHLORIDE 50.00 54.86 ug/1 97 67-122 CHLOROBENZENE 50.00 48.08 ug/1 96 75-113 CHLOROFORM 50.00 52.96 ug/1 106 74-124 CHLOROFORM 50.00 54.21 ug/1 106 74-124 CHLOROFORM 50.00 54.21 ug/1 108 75-121 CHLOROFORM 50.00 54.21 ug/1 108 75-121 CHLOROPENANE 50.00 54.21 ug/1 108 75-121 CHLOROPENANE 50.00 54.21 ug/1 108 75-121 CHLOROMETHANE 50.00 54.21 ug/1 108 75-121 CHLOROPENANE 50.00 54.39 ug/1 109 83-126 CYCLOJEKANE 50.00 54.39 ug/1 109 83-126 CYCLOJEKANE 50.00 54.57 ug/1 109 83-126 CYCLOJEKANE 50.00 54.57 ug/1 109 55-139 DIBROMOCHLOROPETHANE 50.00 54.57 ug/1 109 55-139 DIBROMOCHLOROPETHANE 50.00 48.62 ug/1 97 70-130 DIBROMOCHLOROPETHANE 50.00 48.62 ug/1 99 74-113		50.00	49.84	ug/l	100	80-116
1,2-DICHLOROFTHANE 1,2-DICHLOROFROPANE 50.00 51.22 ug/1 102 79-115 1,3-DICHLOROBENZENE 50.00 48.33 ug/1 97 74-113 1,4-DICHLOROBENZENE 50.00 47.79 ug/1 96 74-109 2-BUTANONE 50.00 48.99 ug/1 98 72-129 2-HEXANONE 50.00 46.68 ug/1 93 75-131 ACETONE 50.00 51.58 ug/1 103 70-138 BENZENE 50.00 50.85 ug/1 102 77-116 BROMODICHLOROMETHANE 50.00 50.00 50.85 ug/1 102 77-116 BROMOMETHANE 50.00 50.00 50.85 ug/1 102 77-116 BROMOMETHANE 50.00 50.00 50.85 ug/1 102 77-116 BROMOMETHANE 50.00 50.00 50.85 ug/1 102 77-116 CHAROROFROM 50.00 50.75 ug/1 102 77-121 CHAROROFROM 50.00 50.75 ug/1 106 74-124 CHAROROFROM 50.00 50.55 ug/1 106 74-124 CHAROROFROM 50.00 50.55 ug/1 108 75-121 CHAROROFROM 50.00 50.55 ug/1 108 75-121 CHAROROFROM 50.00 50.55 ug/1 108 75-121 CHAROROFROM 50.00 50.55 ug/1 109 83-126 CYCLOHEXANE 50.00 50.55 ug/1 109 83-126 CYCLOHEXANE 50.00 50.55 ug/1 109 83-126 CYCLOHEXANE 50.00 50.50 50.51 BROW 50.10 BROW 50.	· ·	50.00	47.62	ug/l	95	76-110
1,2-DICHLOROPROPANE 50.00 51.22 ug/1 102 79-115 1,3-DICHLOROBENZENE 50.00 48.33 ug/1 97 74-113 1,4-DICHLOROBENZENE 50.00 47.79 ug/1 96 74-109 2-BUTANOME 50.00 48.99 ug/1 98 72-129 2-HEXANONE 50.00 46.68 ug/1 93 75-131 ACETONE 50.00 50.55 ug/1 102 77-116 BENZENE 50.00 51.87 ug/1 102 77-116 BROMODICHLOROMETHANE 50.00 51.87 ug/1 102 77-116 BROMOMETHANE 50.00 50.75 ug/1 102 79-121 CARBON DISULFIDE 50.00 37.54 ug/1 75 59-125 CARBON TETRACHLORIDE 50.00 48.66 ug/1 97 67-122 CARBON TETRACHLORIDE 50.00 48.66 ug/1 97 67-122 CARBON TETRACHLORIDE 50.00 52.96 ug/1 106 74-124 CHLOROBENZENE 50.00 48.08 ug/1 96 75-113 CHLOROFORM 50.00 50.55 ug/1 109 75-121 CHLOROFORM 50.00 50.55 ug/1 108 75-121 CHLOROFORM 50.00 50.55 ug/1 109 83-126 CHLOROFORM 50.00 50.55 ug/1 101 60-122 CIS-1,2-DICHLOROFTHENE 50.00 52.57 ug/1 109 83-126 CYCLOHEXANE 50.00 54.21 ug/1 109 83-126 CYCLOHEXANE 50.00 54.39 ug/1 109 83-126 CYCLOHEXANE 50.00 54.57 ug/1 109 55-139 ETHYLBENZENE 50.00 54.57 ug/1 109 55-139 ETHYLBENZENE 50.00 54.57 ug/1 109 55-139 ETHYLBENZENE 50.00 49.14 ug/1 98 74-113 METHYL ACETATE 50.00 50.71 ug/1 101 67-123	*	50.00	54.11	ug/l	108	75-121
1,3-DICHLOROBENZENE 50.00 48.33 ug/l 97 74-113 1,4-DICHLOROBENZENE 50.00 47.79 ug/l 96 74-109 2-BUTANONE 50.00 48.99 ug/l 98 72-129 2-HEXANONE 50.00 46.61 ug/l 93 73-132 4-METHYL-2-PENTANONE 50.00 46.68 ug/l 93 75-131 ACETONE 50.00 51.58 ug/l 103 70-138 BENNENE 50.00 50.85 ug/l 102 77-116 BROMODICHLOROMETHANE 50.00 50.85 ug/l 104 79-120 BROMOFORM 50.00 50.75 ug/l 102 79-121 BROMOMETHANE 50.00 37.54 ug/l 75 59-125 CARBON DISULFIDE 50.00 37.54 ug/l 75 59-125 CARBON TETRACHLORIDE 50.00 48.66 ug/l 96 75-113 CHLOROBENZENE 50.00 48.66 ug/l 96 75-113 CHLOROSENZENE 50.00 45.60 ug/l 91 73-120 CHLOROFORM 50.00 50.55 ug/l 108 75-121 CHLOROMETHANE 50.00 54.21 ug/l 108 75-121 CHLOROMETHANE 50.00 50.55 ug/l 109 83-126 CYCLOROMETHANE 50.00 52.57 ug/l 109 83-126 CYCLOROMETHANE 50.00 54.39 ug/l 109 83-126 CYCLOREXANE 50.00 54.39 ug/l 109 83-126 CYCLOREXANE 50.00 54.39 ug/l 109 83-126 CYCLOREXANE 50.00 54.57 ug/l 104 779-121 DICHLOROMETHANE 50.00 54.39 ug/l 109 83-126 CYCLOREXANE 50.00 54.39 ug/l 109 83-126 CYCLOREXANE 50.00 54.60 ug/l 97 70-130 LIBROMCCHLOROMETHANE 50.00 54.57 ug/l 104 779-121 DICHLOROMETHANE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 49.14 ug/l 98 74-113	•	50.00	51.22	ug/l	102	79-115
1,4-DICHLOROBENZENE 50.00 47.79 ug/l 96 74-109 2-BUTANONE 50.00 48.99 ug/l 98 72-129 2-HEXANONE 50.00 46.71 ug/l 93 73-132 4-METHYL-2-PENTANONE 50.00 46.68 ug/l 93 75-131 ACETONE 50.00 51.58 ug/l 103 70-138 BENZENE 50.00 50.85 ug/l 102 77-116 BROMODICHLOROMETHANE 50.00 50.85 ug/l 104 79-120 BROMOFORM 50.00 50.75 ug/l 102 79-121 BROMOMETHANE 50.00 37.54 ug/l 102 79-121 CARBON DISULFIDE 50.00 37.54 ug/l 75 59-125 CARBON TETRACHLORIDE 50.00 52.96 ug/l 106 74-124 CHLOROBENZENE 50.00 48.08 ug/l 96 75-113 CHLOROBENZENE 50.00 45.60 ug/l 91 73-120 CHLOROMETHANE 50.00 54.21 ug/l 108 75-121 CHLOROMETHANE 50.00 54.21 ug/l 108 75-121 CHLOROMETHANE 50.00 55.55 ug/l 101 60-122 CIS-1,2-DICHLOROBENE 50.00 52.57 ug/l 105 74-119 CIS-1,3-DICHLOROPROPENE 50.00 54.39 ug/l 109 83-126 CYCLOHEXANE 50.00 54.50 ug/l 109 83-126 CYCLOHEXANE 50.00 54.57 ug/l 109 83-126 CYCLOHEXANE 50.00 54.57 ug/l 109 55-139 ETHYLIBENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 50.71 ug/l 101 67-123	'	50.00	48.33	ug/l	97	74-113
2-BUTANONE 50.00 48.99 ug/l 98 72-129 2-HEXANONE 50.00 46.71 ug/l 93 73-132 4-METHYL-2-PENTANONE 50.00 46.68 ug/l 93 75-131 ACETONE 50.00 51.58 ug/l 103 70-138 BENZENE 50.00 51.87 ug/l 102 77-116 BROMODICHLOROMETHANE 50.00 51.87 ug/l 104 79-120 BROMOFORM 50.00 50.75 ug/l 102 77-121 BROMOMETHANE 50.00 48.66 ug/l 97 67-122 CARBON DISULFIDE 50.00 37.54 ug/l 75 59-125 CARBON TETRACHLORIDE 50.00 52.96 ug/l 106 74-124 CHLOROBENZENE 50.00 48.08 ug/l 96 75-113 CHLOROETHANE 50.00 45.60 ug/l 91 73-120 CHLOROFORM 50.00 54.21 ug/l 108 75-121 CHLOROMETHANE 50.00 52.57 ug/l 108 75-121 CHLOROMETHANE 50.00 52.57 ug/l 108 75-121 CHLOROMETHANE 50.00 52.57 ug/l 108 75-121 CHLOROMETHANE 50.00 50.55 ug/l 101 60-122 CIS-1,2-DICHLOROETHENE 50.00 52.57 ug/l 105 74-119 CIS-1,3-DICHLOROFOPENE 50.00 54.39 ug/l 109 83-126 CYCLOHEXANE 50.00 47.70 ug/l 95 60-123 DIBROMOCHLOROMETHANE 50.00 54.57 ug/l 109 770-130 ISOPROPYL BENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE	•	50.00	47.79	ug/l	96	74-109
4-MEHYL-2-PENTANONE 50.00 46.68 ug/l 93 75-131 ACETONE 50.00 51.58 ug/l 103 70-138 BENZENE 50.00 50.85 ug/l 102 77-116 BROMODICHLOROMETHANE 50.00 51.87 ug/l 104 79-120 BROMOFFORM 50.00 50.75 ug/l 102 79-121 BROMOMETHANE 50.00 48.66 ug/l 97 67-122 CARBON TETRACHLORIDE 50.00 37.54 ug/l 75 59-125 CARBON TETRACHLORIDE 50.00 48.08 ug/l 96 75-113 CHLOROBENZENE 50.00 45.60 ug/l 91 73-120 CHLOROFORM 50.00 50.55 ug/l 108 75-121 CHLOROMETHANE 50.00 52.96 ug/l 108 75-121 CHLOROMETHANE 50.00 50.55 ug/l 101 60-122 CHS-1,2-DICHLOROETHENE 50.00 52.57 ug/l 105 74-119 CIS-1,3-DICHLOROPROPENE 50.00 54.39 ug/l 109 83-126 CYCLOHEXANE 50.00 47.70 ug/l 95 60-123 DIBROMOCHLOROMETHANE 50.00 54.57 ug/l 104 779-121 DICHLOROMETHANE 50.00 54.57 ug/l 109 55-139 ETHYLDENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE	•	50.00	48.99	ug/l	98	72-129
ACETONE		50.00	46.71	ug/l	93	73-132
BENZENE 50.00 50.85 ug/l 102 77-116 BROMODICHLOROMETHANE 50.00 51.87 ug/l 104 79-120 BROMOFORM 50.00 50.75 ug/l 102 79-121 BROMOMETHANE 50.00 48.66 ug/l 97 67-122 CARBON DISULFIDE 50.00 37.54 ug/l 75 59-125 CARBON TETRACHLORIDE 50.00 52.96 ug/l 106 74-124 CHLOROBENZENE 50.00 48.08 ug/l 96 75-113 CHLOROFORM 50.00 45.60 ug/l 91 73-120 CHLOROFORM 50.00 54.21 ug/l 108 75-121 CHLOROMETHANE 50.00 50.55 ug/l 101 60-122 CIS-1,2-DICHLOROETHENE 50.00 52.57 ug/l 105 74-119 CIS-1,3-DICHLOROFORDE 50.00 54.39 ug/l 109 83-126 CYCLOHEXANE 50.00 47.70 ug/l 95 60-123 DIBROMOCHLOROMETHANE 50.00 54.57 ug/l 104 779-121 DICHLOROMETHANE 50.00 54.57 ug/l 104 779-121 DICHLOROMETHANE 50.00 54.57 ug/l 109 55-139 ETHYLBENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 50.71 ug/l 101 67-123	4-METHYL-2-PENTANONE	50.00	46,68	ug/l	93	75-131
BENZENE 50.00 50.85 ug/l 102 77-116 BROMODICHLOROMETHANE 50.00 51.87 ug/l 104 79-120 BROMOFORM 50.00 50.75 ug/l 102 79-121 BROMOMETHANE 50.00 48.66 ug/l 97 67-122 CARBON DISULFIDE 50.00 37.54 ug/l 75 59-125 CARBON TETRACHLORIDE 50.00 52.96 ug/l 106 74-124 CHLOROBENZENE 50.00 48.08 ug/l 96 75-113 CHLOROFATHANE 50.00 45.60 ug/l 91 73-120 CHLOROMETHANE 50.00 50.55 ug/l 108 75-121 CLISCALIANE 50.00 50.55 ug/l 101 60-122 CIS-1,2-DICHLOROFTENE 50.00 52.57 ug/l 105 74-119 CIS-1,3-DICHLOROPROPENE 50.00 54.39 ug/l 109 83-126 CYCLOHEXANE 50.00 51.80 ug/l 104 779-121 DICHLORODIFLUOROMETHANE	ACETONE	50.00	51.58	ug/l	103	70-138
BROMOFORM 50.00 50.75 ug/l 102 79-121 BROMOFORM 50.00 48.66 ug/l 97 67-122 CARBON DISULFIDE 50.00 37.54 ug/l 75 59-125 CARBON TETRACHLORIDE 50.00 52.96 ug/l 106 74-124 CHLOROBENZENE 50.00 48.08 ug/l 96 75-113 CHLOROFORM 50.00 45.60 ug/l 91 73-120 CHLOROFORM 50.00 54.21 ug/l 108 75-121 CHLOROMETHANE 50.00 50.55 ug/l 101 60-122 CIS-1,2-DICHLOROFTHENE 50.00 52.57 ug/l 105 74-119 CIS-1,3-DICHLOROFORDE 50.00 54.39 ug/l 109 83-126 CYCLOHEXANE 50.00 54.39 ug/l 109 83-126 CYCLOHEXANE 50.00 51.80 ug/l 104 779-121 DICHLORODIFLUOROMETHANE 50.00 54.57 ug/l 109 779-121 DICHLORODIFLUOROMETHANE 50.00 54.57 ug/l 109 55-139 ETHYLBENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE		50.00	50.85	ug/l	102	77-116
BROMOMETHANE CARBON DISULFIDE SO.00 SO.00 BROMOMETHANE SO.00	BROMODICHLOROMETHANE	50.00	51.87	ug/l	104	79-120
CARBON DISULFIDE 50.00 37.54 ug/l 75 59-125 CARBON TETRACHLORIDE 50.00 52.96 ug/l 106 74-124 CHLOROBENZENE 50.00 48.08 ug/l 96 75-113 CHLOROETHANE 50.00 45.60 ug/l 91 73-120 CHLOROFORM 50.00 54.21 ug/l 108 75-121 CHLOROMETHANE 50.00 50.55 ug/l 101 60-122 CIS-1,2-DICHLOROETHENE 50.00 52.57 ug/l 105 74-119 CIS-1,3-DICHLOROPROPENE 50.00 54.39 ug/l 109 83-126 CYCLOHEXANE 50.00 47.70 ug/l 95 60-123 DIBROMOCHLOROMETHANE 50.00 51.80 ug/l 104 779-121 DICHLORODIFLUOROMETHANE 50.00 54.57 ug/l 109 55-139 ETHYLBENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 50.71 ug/l 101 67-123	BROMOFORM	50,00	50.75	ug/l	102	79-121
CARBON TETRACHLORIDE 50.00 52.96 ug/l 106 74-124 CHLOROBENZENE 50.00 48.08 ug/l 96 75-113 CHLOROETHANE 50.00 45.60 ug/l 91 73-120 CHLOROFORM 50.00 54.21 ug/l 108 75-121 CHLOROMETHANE 50.00 50.55 ug/l 101 60-122 CIS-1,2-DICHLOROETHENE 50.00 52.57 ug/l 105 74-119 CIS-1,3-DICHLOROPROPENE 50.00 54.39 ug/l 109 83-126 CYCLOHEXANE 50.00 47.70 ug/l 95 60-123 DIBROMOCHLOROMETHANE 50.00 51.80 ug/l 104 779-121 DICHLORODIFLUOROMETHANE 50.00 54.57 ug/l 109 55-139 ETHYLBENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 50.71 ug/l 101 67-123	BROMOMETHANE	50.00	48.66	ug/l	97	67-122
CHLOROBENZENE 50.00 48.08 ug/l 96 75-113 CHLOROFORM 50.00 45.60 ug/l 91 73-120 CHLOROMETHANE 50.00 54.21 ug/l 108 75-121 CHLOROMETHANE 50.00 50.55 ug/l 101 60-122 CIS-1,2-DICHLOROFORM 50.00 52.57 ug/l 105 74-119 CIS-1,3-DICHLOROPROPENE 50.00 54.39 ug/l 109 83-126 CYCLOHEXANE 50.00 47.70 ug/l 95 60-123 DIBROMOCHLOROMETHANE 50.00 51.80 ug/l 104 779-121 DICHLORODIFLUOROMETHANE 50.00 54.57 ug/l 109 55-139 ETHYLBENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 50.71 ug/l 101 67-123	CARBON DISULFIDE	50.00	37.54	ug/l	75	59-125
CHLOROFETHANE 50.00 45.60 ug/l 91 73-120 CHLOROFORM 50.00 54.21 ug/l 108 75-121 CHLOROMETHANE 50.00 50.55 ug/l 101 60-122 CIS-1,2-DICHLOROFTHENE 50.00 52.57 ug/l 105 74-119 CIS-1,3-DICHLOROPROPENE 50.00 54.39 ug/l 109 83-126 CYCLOHEXANE 50.00 47.70 ug/l 95 60-123 DIBROMOCHLOROMETHANE 50.00 51.80 ug/l 104 779-121 DICHLORODIFLUOROMETHANE 50.00 54.57 ug/l 109 55-139 ETHYLBENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 50.71 ug/l 101 67-123	CARBON TETRACHLORIDE	50.00	52.96	ug/l	106	74-124
CHLOROFORM 50.00 54.21 ug/l 108 75-121 CHLOROMETHANE 50.00 50.55 ug/l 101 60-122 CIS-1,2-DICHLOROETHENE 50.00 52.57 ug/l 105 74-119 CIS-1,3-DICHLOROPROPENE 50.00 54.39 ug/l 109 83-126 CYCLOHEXANE 50.00 47.70 ug/l 95 60-123 DIBROMOCHLOROMETHANE 50.00 51.80 ug/l 104 779-121 DICHLORODIFLUOROMETHANE 50.00 54.57 ug/l 109 55-139 ETHYLBENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 50.71 ug/l 101 67-123	CHLOROBENZENE	50.00	48.08	ug/l	96	75-113
CHLOROMETHANE 50.00 50.55 ug/l 101 60-122 CIS-1,2-DICHLOROPETHENE 50.00 52.57 ug/l 105 74-119 CIS-1,3-DICHLOROPROPENE 50.00 54.39 ug/l 109 83-126 CYCLOHEXANE 50.00 47.70 ug/l 95 60-123 DIBROMOCHLOROMETHANE 50.00 51.80 ug/l 104 779-121 DICHLORODIFLUOROMETHANE 50.00 54.57 ug/l 109 55-139 ETHYLBENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 50.71 ug/l 101 67-123	CHLOROETHANE	50.00	45.60	ug/l	91	73-120
CIS-1,2-DICHLOROETHENE 50.00 52.57 ug/l 105 74-119 CIS-1,3-DICHLOROPROPENE 50.00 54.39 ug/l 109 83-126 CYCLOHEXANE 50.00 47.70 ug/l 95 60-123 DIBROMOCHLOROMETHANE 50.00 51.80 ug/l 104 779-121 DICHLORODIFLUOROMETHANE 50.00 54.57 ug/l 109 55-139 ETHYLBENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 50.71 ug/l 101 67-123	CHLOROFORM	50.00	54.21	ug/l	108	75-121
CIS-1,3-DICHLOROPROPENE 50.00 54.39 ug/l 109 83-126 CYCLOHEXANE 50.00 47.70 ug/l 95 60-123 DIBROMOCHLOROMETHANE 50.00 51.80 ug/l 104 779-121 DICHLORODIFLUOROMETHANE 50.00 54.57 ug/l 109 55-139 ETHYLBENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 50.71 ug/l 101 67-123	CHLOROMETHANE	50.00	50.55	ug/l	101	60-122
CYCLOHEXANE 50.00 47.70 ug/l 95 60-123 DIBROMOCHLOROMETHANE 50.00 51.80 ug/l 104 779-121 DICHLORODIFLUOROMETHANE 50.00 54.57 ug/l 109 55-139 ETHYLBENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 50.71 ug/l 101 67-123	CIS-1,2-DICHLOROETHENE	50.00	52.57	ug/l	105	74-119
DIBROMOCHLOROMETHANE 50.00 51.80 ug/l 104 779-121 DICHLORODIFLUOROMETHANE 50.00 54.57 ug/l 109 55-139 ETHYLBENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 50.71 ug/l 101 67-123	CIS-1,3-DICHLOROPROPENE	50.00	54.39	ug/l	109	83-126
DICHLORODIFLUOROMETHANE 50.00 54.57 ug/l 109 55-139 ETHYLBENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 50.71 ug/l 101 67-123	CYCLOHEXANE	50.00	47.70	ug/l	95	60-123
ETHYLBENZENE 50.00 48.62 ug/l 97 70-130 ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 50.71 ug/l 101 67-123	DIBROMOCHLOROMETHANE	50.00	51.80	ug/l	104	779-121
ISOPROPYL BENZENE 50.00 49.14 ug/l 98 74-113 METHYL ACETATE 50.00 50.71 ug/l 101 67-123	DICHLORODIFLUOROMETHANE	50.00	54.57	ug/l	109	55-139
METHYL ACETATE 50.00 50.71 ug/l 101 67-123	ETHYLBENZENE	50.00	48.62	ug/l	97	70-130
METHYL ACETATE 50.00 50.71 ug/l 101 67-123	ISOPROPYL BENZENE	50.00	49.14	ug/l	98	74-113
METHYL-TERT-BUTYL ETHER 50.00 52.58 ug/l 105 75-120	METHYL ACETATE	50.00	50.71	ug/l	101	67-123
	METHYL-TERT-BUTYL ETHER	50.00	52.58	ug/l	105	75-120



VINYL CHLORIDE

XYLENE (TOTAL)

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 37 of 60 Report ID: AK2076

QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63135 : LCS63135:1 LCS

Matrix

: GW/ChemW

64-122

73-116

Prep Method

105

97

ug/l

ug/l

Analtyical Method: SW846 8260B

	Spike	LCS		LCS	Limits
Parameter	Added	Conc	Units	%REC	%REC
METHYLCYCLOHEXANE	50.00	46.01	ug/l	92	62-123
METHYLENE CHLORIDE	50.00	53,11	ug/l	106	70-120
STYRENE	50.00	49.85	ug/l	100	78-113
TETRACHLOROETHENE	50.00	48.13	ug/l	96	70-120
TOLUENE	50.00	50.31	ug/l	101	75-116
TRANS-1,2-DICHLOROETHENE	50.00	51.54	ug/l	103	73-121
TRANS-1,3-DICHLOROPROPENE	50.00	48.70	ug/l	97	73-114
TRICHLOROETHENE	50.00	48.66	ug/l	97	75-119
TRICHLOROFLUOROMETHANE	50.00	49.12	ug/l	98	71-128
VINYL ACETATE	50.00	48.11	ug/l	96	65-142

52,68

145.9

50,00

150.0



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Batch Sample List

WorkGroup : WG63145 Description: VO/DIOXANE Matrix

: GW/ChemW

Prep Method

: Analtyical Method: SW846 8260B

		PREP		ANALYTICAL			
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution	
L12091001-03	D12-5-23	2		09/11/2012 1139	PAP/JVB	1	
L12091001~12	TRIP BLANK #2	1		09/11/2012 1111	PAP/JVB	1	
MB63145:1	Method Blank	1		09/11/2012 0921	PAP/JVB	1	
MS12091001-03:63145	Matrix Spike	1		09/11/2012 1453	PAP/JVB	1	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Surrogates % Recovery

WorkGroup: WG63145

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DOXD8 61-131
L12091001-03	09/11/2012 1139	116
L12091001-12	09/11/2012 1111	117
MB63145:1	09/11/2012 0921	119
MS12091001-03:63145	09/11/2012 1453	107

DOXD8 - 1,4-DIOXANE-D8



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63145 : MB63145:1 Blank

Result Qua1 Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Dilution: 1 Analyst: PAP/JVB Date/Time: 09/11/2012 0921 10.0 U 10.0 ug/l 1,4-DIOXANE 119 % (61-13**1**) Surr: 1,4-DIOXANE-D8



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63145

: MS12091001-03:63145

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike Added	Sample Conc		Unițs	MS %REC	Limits %REC
Parameter 1.4-DIOXANE	100.0	< 10.00	111.8	ug/l	112	63-132

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : September 27, 2012

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QC Batch Report - Batch Sample List

WorkGroup : WG63169
Description: WC/NO3NO2

Matrix : GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091001-01	D12-8-29 MS/MSD	1		09/12/2012 1411	LES	2
L12091001-01	D12-6-27	1		09/12/2012 1418	LES	2
L12091001-02	D12-5-23	1		09/12/2012 1421	LES	2
L12091001-03	D12-9-16	1		09/12/2012 1423	LES	2
L12091001-04	D12-9-16A	1		09/12/2012 1425	LES	2
L12091001-06	D12-7-17	1		09/12/2012 1507	LES	1
L12091001-07	D12-16-49	1		09/12/2012 1509	LES	10
L12091001-07	D12-26-30	1		09/12/2012 1438	LES	2
L12091001-09	D12-25-26	1		09/12/2012 1512	LES	1
1.12091001-10	D12-24-37	1		09/12/2012 1514	LES	1
L12091001-13	D12-16-49A	1		09/12/2012 1517	LES	10
MB63169:1	Method Blank	1		09/12/2012 1354	LES	1
LCS63169:1	Laboratory Control Spike	1		09/12/2012 1347	LES	1
MS12091001-01:63169	Matrix Spike	1		09/12/2012 1413	LES	2
MS12091201-01:63169	Matrix Spike	1		09/12/2012 1450	LES	2
MSD12091201-04:83169	Matrix Spike Duplicate	1		09/12/2012 1416	LES	2
MSD12091201-04:63169	Matrix Spike Duplicate	1		09/12/2012 1452	LES	2



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : September 27, 2012 Page 43 of 60 Report ID: AK2076

QC Batch Report - Method Blanks

WorkGroup: WG63169 : MB63169:1 Blank

Parameter

Result

Qual

Matrix : GW/ChemW

Wet Chemistry

EPA 353.2

0,0200

mg/l

Date/Time: 09/12/2012 1354 Analyst: LES Dilution: 1

NITRATE + NITRITE NITROGEN (AS N)

0.0200 U



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63169

MS/MSD : MS12091001-01:63169

MSD12091001-01:63169

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	1.75	2.76	mg/l	100	90-110
	Spike	MSD	Units	MSD %REC	%RPD	Limits %RPD %REC
Parameter NITRATE + NITRITE NITROGEN (AS N)	1.00	Conc 2.74	mg/l	99	1	10 90-110

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63169

MS/MSD : MS12091201-04:63169

MSD12091201-04:63169

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limit %REC	S
NITRATE + NITRITE NITROGEN (AS N)	1.00	1.78	2.89	mg/l	110	90-11	0
Parameter	Spike Added	MSD Cone	Units	MSD %REC	\$RPD	Limit %RPD	s %rec
NITRATE + NITRITE NITROGEN (AS N)	1.00	2.87	mg/l	109	1	10	90-110

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63169

: LCS63169:1 LCS

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter		Spike Added	LCS Conc	Units		Limits %REC
NITRATE + NITRITE NITROGEN (AS N)	0.500	0,484	mg/l	97	90-110



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Batch Sample List

WorkGroup : WG63254 Description: Alkalinity Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091001-01	D12-8-29 MS/MSD	1		09/19/2012 1047	CDC	:
L12091001-02	D12-6-27	1		09/19/2012 1100	CDC	
L12091001-03	D12-5-23	1		09/19/2012 1106	CDC	
L12091001-04	D12-9-16	1		09/19/2012 1115	CDC	
L12091001-05	D12-9-16A	1		09/19/2012 1129	CDC	
L12091001-06	D12-7-17	1		09/19/2012 1133	CDC	
L12091001-07	D12-16-49	1		09/19/2012 1145	CDC	
L12091001-08	D12-26-30	1		09/19/2012 1203	CDC	
L12091001-09	D12-25-26	1		09/19/2012 1213	CDC	
L12091001-10	D12-24-37	1		09/19/2012 1228	CDC	
L12091001-13	D12-16-49A	1		09/19/2012 1409	CDC	
D12091001-01:63254	Duplicate	1		09/19/2012 1053	CDC	
D12091701-04:63254	Duplicate	1		09/19/2012 1539	CDC	
MB63254:1	Method Blank	1		09/19/2012 0952	CDC	
LCS63254:1	Laboratory Control Spike	1		09/19/2012 0959	CDC	



SC Certification Number: 24110001

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QC Batch Report - Method Blanks

WorkGroup: WG63254 : MB63254:1 Blank

Units Result Parameter

Matrix : GW/ChemW

Wet Chemistry

SM 2320B

Date/Time: 09/19/2012 0952 Analyst: CDC Dilution: 1 mg/l1.00 U 1.00 ALKALINITY, TOTAL 4.16 su ENDPOINT PH



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63254 LCS

: LCS63254:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Spike Added	LCS Conc	Units	LCS %REC	Limits %REC
ALKALINITY, TOTAL	1000	974.9	mg/l	97	90-110



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Sample Duplicates

WorkGroup: WG63254

Duplicate: D12091001-01:63254

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Sample Conc	DUP Conc			RPD %RPD
ΔΙ.ΚΔΙ.ΤΝΤΤΎ. ΤΟΤΆΙ.	0.00	0.00	1.00	mg/l	10

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Sample Duplicates

WorkGroup: WG63254

Duplicate: D12091701-04:63254

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

	Sample Conc	DUP Conc	RDL	Units		RPD	
ALKALINITY, TOTAL	69.35	68.34	2.00	mg/1	1	1.0	

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

Report Date : September 27, 2012

ROSWELL, GA 30076 Contact : BRYON DAHLGREN

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QC Batch Report - Batch Sample List

WorkGroup : WG63176
Description: Sulfide-GW

Matrix : GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091001-01	D12-8-29 MS/MSD	1		09/10/2012 1547	CDC	1
L12091001-01	D12-6-27	1		09/10/2012 1548	CDC	1
L12091001-03	D12-5-23	1		09/10/2012 1549	CDC	1
L12091001-03	D12-9-16	1		09/10/2012 1556	CDC	1
L12091001-05	D12-9-16A	1		09/10/2012 1557	CDC	1
L12091001-06	D12-7-17	1		09/10/2012 1558	CDC	1
L12091001-07	D12-16-49	1		09/10/2012 1559	CDC	1
L12091001-08	D12-26-30	1		09/10/2012 1600	CDC	1
L12091001-09	D12-25-26	1		09/10/2012 1601	CDC	1
L12091001-10	D12-24-37	1		09/10/2012 1602	CDC	1
L12091001-13	D12-16-49A	1		09/10/2012 1603	CDC	1
MB63176:1	Method Blank	1		09/10/2012 1554	CDC	1
LCS63176:1	Laboratory Control Spike	1		09/10/2012 1540	CDC	1
MS12091001-01:63176	Matrix Spike	1		09/10/2012 1551	CDC	1
MS12091001-13:63176	Matrix Spike	1		09/10/2012 1604	CDC	1
MSD12091001-01:63176	Matrix Spike Duplicate	1		09/10/2012 1552	CDC	1
MSD12091001-13:63176	Matrix Spike Duplicate	1		09/10/2012 1605	CDC	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63176 : MB63176:1 Blank

Result Qual Parameter

Units

Matrix : GW/ChemW

Wet Chemistry

SM 4500-S2-D

Date/Time: 09/10/2012 1554 Analyst: CDC

Dilution: 1

SULFIDE, TOTAL

mg/10.0500 0.0500 U



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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Report Date : September 27, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63176

MS/MSD : MS12091001-01:63176

MSD12091001-01:63176

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

	Spike	Sample	MS Conc	Units	MS %REC	Limits %REC
Parameter SULFIDE, TOTAL	Added 0.500	Conc < 0.0500	0.482	mg/l	96	81-121
	Spike	MSD		MSD		Limits
Parameter	Added	Conc	Units	%REC	%RPD	%RPD %REC 10 81-121
SULFIDE, TOTAL	0.500	0.491	mg/l	98	2	10 81-121

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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1455 OLD ALABAMA RD.

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Contact : BRYON DAHLGREN

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63176

MS/MSD : MS12091001-13:63176

MSD12091001-13:63176

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %rec	Limits %REC
SULFIDE, TOTAL	0.500	< 0.0500	0.517	mg/l	103	81-121
	Spika	MSD		MSD		Limits
Parameter	Added	Conc	Units	%REC	%RPD	%RPD %REC
SULFIDE, TOTAL	0.500	0.511	mg/l	102	1	10 81-121

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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Client : AECOM

1455 OLD ALABAMA RD.

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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63176

LCS

: LCS63176:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

					Annual Statement Control of Contr	
Parameter		Spike Added	LCS Conc	Units	LCS %REC	Limits %REC
SULFIDE, TO)TAL	0.500	0.520	mg/l	104	90-110



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Batch Sample List

WorkGroup : WG63172
Description: IC-GW

Matrix

: GW/ChemW

Prep Method

•

Analtyical Method: SW846 9056A

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091001-01	D12-8-29 MS/MSD	1.		09/12/2012 2125	CDC	1
L12091001-02	D12-6-27	1		09/12/2012 2257	CDC	1
L12091001-03	D12-5-23	1		09/12/2012 2327	CDC	1
L12091001-04	D12-9-16	1		09/12/2012 2358	CDC	1
L12091001-05	D12-9-16A	1.		09/13/2012 0028	CDC	1
L12091001-06	D12-7-17	1		09/13/2012 0200	CDC	1
L12091001-07	D12-16-49	1		09/13/2012 0231	CDC	1
L12091001-08	D12-26-30	1		09/13/2012 0301	CDC	1
L12091001-09	D12-25-26	1		09/13/2012 0332	CDC	1
L12091001-10	D12-24-37	1		09/13/2012 0402	CDC	1
L12091001-13	D12-16-49A	1		09/13/2012 0433	CDC	1
MB63172:1	Method Blank	1		09/12/2012 1110	CDC	1
LCS63172:1	Laboratory Control Spike	1		09/12/2012 1140	CDC	1
MS12091001-01:63172	Matrix Spike	1		09/12/2012 2156	CDC	1
MSD12091001-01:63172	Matrix Spike Duplicate	1		09/12/2012 2226	CDC	1



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

SUITE 170

ROSWELL, GA 30076

1455 OLD ALABAMA RD.

Contact : BRYON DAHLGREN

Report Date : September 27, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63172 : MB63172:1 Blank

Parameter

Result Qual

Units

Matrix : GW/ChemW

SW846 9056A

Date/Time: 09/12/2012 1110

mg/1

Wet Chemistry

SULFATE

Analyst: CDC Dilution: 1

1.00 U

1.00



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63172

MS/MSD : MS12091001-01:63172

MSD12091001-01:63172

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
SULFATE	10.00	< 1.00	9.84	mg/l	98	80-120
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
Parameter SULFATE	10.00	9.86	mg/1	99	0	15 80-120

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63172

: LCS63172:1 LCS

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

Parameter	Spike Added		Units		Limits %rEC
SULFATE	10.00	9.85	mg/l	99	80-120



Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RDL	Report Detection Limit	MDL	Method Detection Limit
PQL	Practical Quantitation Limit	DL	Detection Limit
LOQ	Limit of Quantitation	LOD	Limit of Detection
SQL	Sample Quantitation Limit	TIC	Tentatively Identified Compound
С	Degrees Centigrade	F	Degrees Fahrenheit
umhos/cm	micromhos/cm	meq	milliequivalents
su	Standard Units		

mg/l, mg/kg Units of concentration in milligrams per liter for liquids and milligrams per kilogram for solids. Also

referred to as Parts Per Million or "ppm".

ug/l, ug/kg Units of concentration in micrograms per liter for liquids and micrograms per kilograms for solids.

Also referred to as Parts Per Billion or "ppb".

< Less Than
> Greater Than

Solid samples (i.e. soil, sludge, and solid waste) are reported on an as received basis unless otherwise noted.

Data Qualifiers:

- B Analyte also detected in the method blank.
- C Amendable Cyanide is a negative value due to an unknown interference.
- F Surrogate Standard Recovery exceeds the laboratory established acceptance limits.
- J The reported result is an estimated value (eg matrix interference observed or concentration outside the quantitation range.
- N Non-target analyte. The analyte is TIC (using mass spectrometry).
- P Concentration difference between primary and confirmation columns >40%.
- Q One or more quality control criteria failed (e.g., LCS recovery, surrogate spike recovery or CCV
- U Final concentration is below the detection limit.
- * Defined in report comments.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or biological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of the material involved, the test results will be meaningless. If you have any questions regarding the proper techniques of collecting samples, please contact us. However, we cannot be held responsible for sample integrity unless sampling has been performed by a member of our staff.

REPRESENTATION AND LIMITATION OF LIABILITY — The accuracy of all analytical results for samples begins as it is received by the laboratory. Integrity of the sample begins at the time it is placed in the possession of authorized Davis & Floyd, Inc. Laboratories personnel. All other warranties, expressed or implied, are disclaimed. Liability is limited to the cost of the analysis.

ALOYD Client AECOM

Chain of Custody Record

Page _____ of ___

Intact / Broken / None	Custody Seal:	_		lier	Multiplier							:::)	:
Immediate Delivery: Yes / No	Immedia	not have adequate		Date:	Start Date:										
No Temp(C)	On Ice: Yes / No			g 		C or F	Circle:								
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Comments Fraction	거			С	В	Н	A	Total P	ا		Date Time	Time	tion	Sample Description	
12091	Indicate any i hazard		d	1,4-Dioxane	NO3/NO2	SO4, AlkalinitySulfide	VOC's	Number of Cor	Grab Matrix Type	Composite	Only Sample Collection	, <u>, , , , , , , , , , , , , , , , , , </u>			
1001	known d 's with a										Composite Sampling	<u></u>		NOTICE:	
SC				3x40 G TFE	125 P	500 P 125 P	3x40 G TFE	CONTAINE	Optional)	3			Martifal	Norte No	
Special Instructions State	+		servatives (P*)	Required Parameters, Containers and Preservatives (P*)	Required Pa				Atmospheric Conditions	Atmosphe				Collected By	Collec
	4) PO / Quote Number	- ²	a Package (Specify	üirements: [v] Standard [] Data Package (Specify Level: 1 αuirements: L.I Standard [] Rush /Specify:	Reporting Requirer Tumaround Requir	Repu				Copy 10	hlgren	Bryon Dahlgren	кероп 10	Mark Hartford	Comaci
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Office Use Only Laboratory Work Request	Laboratory	. 934 9	:87633, NY - 11996, TN - 2923, VA - 9 (864) 229-4413 Fax: (864) 229-7119	1.AP-1	vood, SC 2	ie, Greenv	b Certification ID: SC - 24110, NC - 25, NE 816 E. Durst Avenue, Greenwood, SC 296	ab Certifi 816 E. L	_	,		061576.08	061576.08	MOM	AECOM
							: :					die franke			Silver I

Matrix Type Definitions 1-Drinking Water 2 - Clean Water 5 - Groundwater 7 - Soil/Sediment 8 - Liquid Studge 9 - Oil 12 - Air (P) Preservative Definitions A - None B - H2SO4 C - HCl D - HNO3 E - Zn Acetate, NaOH F - Filtered G - Na2S2O3

(Note 1) For Discharge Measurements

Davis & Floyd, Inc.
FL02_03 (04/10)



September 27, 2012

BRYON DAHLGREN AECOM 1455 OLD ALABAMA RD. SUITE 170 ROSWELL, GA 30076

Report ID: AK2078

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Login Number

:L12091201

Project Number

:61576.08

Description

:AURIGA - SPARTANBURG, SC

Dear Bryon Dahlgren:

We are pleased to provide the enclosed analytical results for the samples received by Davis & Floyd, Inc. on September 12, 2012.

A formal Quality Assurance/Quality Control program is maintained by Davis & Floyd, which is designed to meet or exceed the ISO/IEC 17025, EPA, NELAP or other appropriate regulatory requirements. All analytical analyses for this project met QA/QC criteria and the results are within the 99% confidence interval for each method unless otherwise stated in the footnotes. This report is to be reproduced only in full.

Feel free to contact our Client Services Representative at (864) 229-4413 if further explanation of the analysis is required. Unless other arrangements have been made, samples will be disposed of or returned 14 days from the date of the report. We appreciate the opportunity to provide services to your firm.

Sincerely, DAVIS & FLOYD, INC.

Yohn H. McCord, Jr. Laboratory Manager

This report conatins a TOTAL of

pages, including attachments.

Initials:



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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Certificate of Analysis Report

Sample ID	Client ID	Date Collected	Date Received	
L12091201-01	D12-3-39 MS/MSD	09/10/2012 1010	09/12/2012	
L12091201-02	D12-3-39A	09/10/2012 1010	09/12/2012	
L12091201-03	D12-4-44	09/10/2012 1215	09/12/2012	
L12091201-04	D12-15-49	09/10/2012 1540	09/12/2012	
L12091201-05	D12-14-49	09/10/2012 1655	09/12/2012	
L12091201-06	D12-10-58.5	09/11/2012 1245	09/12/2012	
L12091201-07	D12-1-44	09/11/2012 1200	09/12/2012	
L12091201-08	D12-15-69.5	09/11/2012 1635	09/12/2012	
L12091201-09	TRIP BLANK #1	09/03/2012 0730	09/12/2012	
L12091201-10	TRIP BLANK #2	09/03/2012 0730	09/12/2012	

This data report has been prepared and reviewed in accordance with standard operating procedures. Test results relate only to the sample tested.

Please direct any questions to your Project Manager.

Reviewed by

Laboratory Manager



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: D12-3-39 MS/MSD Sample ID: L12091201-01

Date Collected: 09/10/2012 1010

Date Received : 09/12/2012

Units Result Qual Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Time: 09/14/2012 1011 Analyst:	PAP	Da	lution:	1	
1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-TRICHLORO-1,2,2-TRIFLUOROETHAN	E <	10.0	U	10.0	ug/l
1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
, 2 - DICHLOROETHANE	<	5.00	U	5.00	ug/l
2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
BUTANONE	<	10.0	U	10.0	ug/l
HEXANONE	<	10.0	U	10.0	ug/l
METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ETONE	<	10.0	U	10.0	ug/l
NZENE	<	5.00	U	5.00	ug/l
ROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
ROMOFORM	<	5.00	U	5.00	ug/l
ROMOMETHANE	<	10.0	U	10.0	ug/l
ARBON DISULFIDE	<	5.00	U	5.00	ug/l
ARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
ILOROBENZENE	<	5.00	U	5.00	ug/l
HLOROETHANE	<	10.0	U	10.0	ug/l
HLOROFORM	<	5.00	U	5.00	ug/l
HLOROMETHANE	<	10.0	U	10.0	ug/l
S-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
IS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
YCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



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1455 OLD ALABAMA RD.

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Certificate of Analysis

Client ID: D12-3-39 MS/MSD Sample ID: L12091201-01

Date Collected: 09/10/2012 1010

Date Received : 09/12/2012

Parameter		Result	Qual	RDL	Units
ETHYLBENZENE	<	5.00	Ū	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	1.0.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		107	ક	(74-140)	
Surr: BROMOFLUOROBENZENE		109	ક	(77-133)	
Surr: TOLUENE-D8		108	ે	(77-131)	
e/Time: 09/18/2012 1255 Analys	t: PAP		Dilution:	: 1	
1,4-DIOXANE	<	10.0	U	10.0	ug/l
Surr: 1,4-DIOXANE-D8		100	응	(61-13 1)	



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Certificate of Analysis

Client ID: D12-3-39A Sample ID: L12091201-02 Date Collected: 09/10/2012 1010 Date Received : 09/12/2012

Units \mathtt{RDL} Result Qual

Parameter Matrix : GW/ChemW

Volatile Organics SW846 8260B

Time: 09/14/2012 1037 Analyst:	PAP	D	ilution	: 1	
,1,1-TRICHLOROETHANE	<	5.00	Ū	5.00	ug/l
,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l
,1,2-TRICHLOROETHANE	<	5,00	U	5.00	ug/l
,1-DICHLOROETHANE	<	5.00	U	5,00	ug/l
,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
,3-DICHLOROBENZENE	<	5.00	U	5,00	ug/l
,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
-BUTANONE	<	10.0	U	10.0	ug/l
- HEXANONE	<	10.0	U	10.0	ug/l
- METHYL - 2 - PENTANONE	<	5.00	U	5.00	ug/l
CETONE	<	10.0	U	10.0	ug/l
ENZENE	<	5.00	U	5.00	ug/l
ROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
ROMOFORM	<	5.00	U	5.00	ug/l
ROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5,00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	Ū	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



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Certificate of Analysis

Client ID: D12-3-39A Sample ID: L12091201-02 Date Collected: 09/10/2012 1010

Date Received : 09/12/2012

Parameter		Result	Qua1	RDL	Units	
ETHYLBENZENE	<	5.00	Ω	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	a	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	ū	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	α	5,00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		107	음	(74-140)		
Surr: BROMOFLUOROBENZENE		110	웅	(77-133)		
Surr: TOLUENE-D8		109	믕	(77-131)		
te/Time: 09/18/2012 1513 Analy	st: PAP		Dilution	: 1		
1,4-DIOXANE	<	10.0	U	10.0	ug/l	
Surr: 1,4-DIOXANE-D8		105	용	(61-131)		



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Project Number: 61576.08

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Contact : BRYON DAHLGREN

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Certificate of Analysis

Client ID: **D12-4-44**Sample ID: L12091201-03

Date Collected: 09/10/2012 1215

Date Received : 09/12/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

Time: 09/14/2012 1103 Analyst: E	PAP	Dilution:	1	
,1,1-TRICHLOROETHANE	<	5.00 U	5.00	ug/l
,1,2,2-TETRACHLOROETHANE	<	5.00 U	5.00	ug/l
,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U	10.0	ug/l
,1,2-TRICHLOROETHANE	<	5.00 U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00 U	5,00	ug/l
1,1-DICHLOROETHENE	<	5.00 U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00 U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00 U	5,00	ug/l
1,2-DICHLOROETHANE	<	5.00 U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00 U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00 U	5,00	ug/l
1,4-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
2-BUTANONE	<	10.0 U	10.0	ug/l
2-HEXANONE	<	10.0 U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00 U	5.00	ug/l
ACETONE	<	10.0 U	10.0	ug/l
BENZENE	<	5,00 U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00 U	5.00	ug/l
BROMOFORM	<	5.00 U	5.00	ug/l
BROMOMETHANE	<	10.0 U	10.0	ug/l
CARBON DISULFIDE	<	5.00 U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00 U	5.00	ug/l
CHLOROBENZENE	<	5.00 U	5.00	ug/l
CHLOROETHANE	<	10.0 U	10.0	ug/l
CHLOROFORM		6.24	5.00	ug/l
CHLOROMETHANE	<	10.0 U	10.0	ug/l
CIS-1,2-DICHLOROETHENE		52.0	5,00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00 U	5.00	ug/l
CYCLOHEXANE	<	5.00 U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00 U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00 U	5.00	ug/l



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1455 OLD ALABAMA RD.

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Certificate of Analysis

Client ID: D12-4-44 Sample ID: L12091201-03 Date Collected: 09/10/2012 1215

Date Received : 09/12/2012

Parameter		Result	Qua1	RDL	Units
ETHYLBENZENE	<	5.00	U	5,00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	Ū	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE		40.8		5.00	ug/l
TOLUENE	<	5,00	Ū	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE		19.9		5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	Ū	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		108	용	(74-140)	
Surr: BROMOFLUOROBENZENE		110	용	(77-133)	
Surr: TOLUENE-D8		110	움	(77-131)	
ce/Time: 09/18/2012 1541 Analys	st: PAP		Dilution	: 1	
1,4-DIOXANE		24.8		10.0	ug/l
Surr: 1,4-DIOXANE-D8		104	웅	(61-131)	



SC Certification Number: 24110001

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Contact : BRYON DAHLGREN

Project Number: 61576.08

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Certificate of Analysis

Client ID: **D12-15-49** Sample ID: L12091201-04 Date Collected: 09/10/2012 1540

Date Received : 09/12/2012

RDL Units Parameter Result Qual

Matrix : GW/ChemW

Volatile Organics

W846 8260B Date/Time: 09/14/2012 1129 Analyst: PA	AP	D.	ilution	: 1	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5,00	U	5.00	ug/l
1,1~DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5,00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5,00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l



SULFATE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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Client ID: **D12-15-49** Sample ID: L12091201-04 Date Collected: 09/10/2012 1540 Date Received : 09/12/2012

mg/1

Parameter		Result	Qual	RDL	Units	
ETHYLBENZENE	<	5.00	Ü	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	บ	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	บ	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5,00	U	5.00	ug/l	
STYRENE	<	5.00	ט	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1, 2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4	Į.	111	용	(74-140)		
Surr: BROMOFLUOROBENZENE		112	용	(77-133)		
Surr: TOLUENE-D8		112	용	(77-131)		
t Chemistry						
PA 353.2						
Date/Time: 09/12/2012 1447	Analyst: LES		Dilution	n: 2		
NITRATE + NITRITE NITROGEN	(AS N)	1.78		0.0400	mg/l	
f 2320B						
Date/Time: 09/19/2012 1417	Analyst: CDC	*****	Dilution	n: 1		
ALKALINITY, TOTAL		32.7		1.00	mg/l	
ENDPOINT PH		4.46			su	
1 4500-S2-D						
Date/Time: 09/17/2012 1520	Analyst: CDC		Dilution	n: 1		
SULFIDE, TOTAL	<	0.0500	U	0.0500	mg/l	
V846 9056A						
Date/Time: 09/13/2012 0503	Analyst: CDC		Dilution	n: 1		

1.00 U



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: D12-14-49 Sample ID: L12091201-05

Date Collected: 09/10/2012 1655

Date Received : 09/12/2012

Parameter

Result Qua1

RDL

Units

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/14/2012 1155 Analyst: P.	A.P	D	ilutio	on: 1	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0 ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00 ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	υ	5.00 ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00 ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROBENZENE	<	5.00	Ü	5.00 ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00 ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
2-BUTANONE	<	10.0	U	10.0 ug/l	
2-HEXANONE	<	10.0	U	10.0 ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00 ug/l	
ACETONE	<	10.0	U	10.0 ug/l	
BENZENE	<	5.00	U	5.00 ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00 ug/l	
BROMOFORM	<	5.00	U	5.00 ug/l	
BROMOMETHANE	<	10.0	U	10.0 ug/l	
CARBON DISULFIDE	<	5.00	Ü	5.00 ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00 ug/l	
CHLOROBENZENE	<	5.00	U	5.00 ug/l	
CHLOROETHANE	<	10.0	U	10.0 ug/l	
CHLOROFORM		30.2		5.00 ug/l	
CHLOROMETHANE	<	10.0	U	10.0 ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00 ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00 ug/l	
CYCLOHEXANE	<	5.00	U	5.00 ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5,00 ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00 ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: **D12-14-49** Sample ID: L12091201-05 Date Collected: 09/10/2012 1655 Date Received : 09/12/2012

Parameter		Result	Qua1	RDL	Units	
					/2	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5,00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	Ü	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		111	왐	(74-140)		
Surr: BROMOFLUOROBENZENE		113	용	(77-133)		
		112		(77-131)		
Surr: TOLUENE-D8		112	·	,		

Date/Time: 09/12/2012 1455

EPA 353.2

NITRATE + NITRITE NITROGEN	(AS N)	2.54	0.0400	mg/l	
SM 2320B					
Date/Time: 09/19/2012 1423	Analyst: CDC	Dilution:	1		
ALKALINITY, TOTAL		26.6	1.00	mg/l	
ENDPOINT PH		4.49		su	
SM 4500-S2-D					
Date/Time: 09/17/2012 1521	Analyst: CDC	Dilution:	1		
SULFIDE, TOTAL	<	0.0500 U	0.0500	mg/l	
SW846 9056A					
Date/Time: 09/13/2012 0534	Analyst: CDC	Dilution:	1		الأوالية المراجعة والمراجعة والمراجعة والمراجعة والمراجعة والمراجعة والمراجعة والمراجعة والمراجعة والمراجعة
SULFATE	<	1.00 U	1.00	mg/l	

Analyst: LES



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: D12-10-58.5 Sample ID: L12091201-06 Date Collected: 09/11/2012 1245

Date Received : 09/12/2012

Parameter

Result Qual \mathtt{RDL}

Units

Matrix : GW/ChemW

Volatile Organics

Time: 09/14/2012 1222 Analyst	: PAP	D:	ilution:	1	
,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
.,1,2-TRICHLORO-1,2,2-TRIFLUOROETHA	NE <	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO~3-CHLOROPROPANE	<	5,00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5,00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	Ū	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10,0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE		20.9		10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5,00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE		10.4		5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l
ETHYLBENZENE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

(77-131)

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: D12-10-58.5 Sample ID: L12091201-06 Date Collected: 09/11/2012 1245 Date Received : 09/12/2012

Parameter		Result	Qual	RDL	Units	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE		13.1		5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	Ū	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		113	용	(74-140)		
Surr: BROMOFLUOROBENZENE		112	용	(77-133)		
Surr: TOLUENE-D8		112	믕	(77-131)		
	yst: PAP/JVB		Dilution	: 10	************	
CHLOROFORM	Y	1460		50.0	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		104	용	(74-140)		
Surr: BROMOFLUOROBENZENE		95	용	(77-133)		

Wet Chemistry

Surr: TOLUENE-D8

EPA 353.2

2111 333.2					
Date/Time: 09/12/2012 1519	Analyst: LES	Dilution:	5		*************
NITRATE + NITRITE NITROGE	en (as n)	4,24	0.100	mg/l	
SM 2320B					
Date/Time: 09/19/2012 1443	Analyst: CDC	Dilution:	1		*****
ALKALINITY, TOTAL	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	123	1.00	mg/l	
ENDPOINT PH		4.50		su	
SM 4500-S2-D					
Date/Time: 09/17/2012 1522	Analyst: CDC	Dilution:	1		***************************************
SULFIDE, TOTAL	<	0.0500 U	0.0500	mg/l	

96 %



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: D12-10-58.5 Sample ID: L12091201-06 Date Collected: 09/11/2012 1245

Date Received : 09/12/2012

Units RDLResult Qual Parameter

SW846 9056A

Analyst: CDC Date/Time: 09/13/2012 0604

Dilution: 1

3.82 SULFATE



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: **D12-1-44** Sample ID: L12091201-07 Date Collected: 09/11/2012 1200 Date Received : 09/12/2012

Parameter

Result

Qua1

RDL

Units

Matrix : GW/ChemW

Volatile Organics

Time: 09/14/2012 1248 Analyst:	PAP	D	ilution:	: 1	
,1,1-TRICHLOROETHANE	<	5.00	Ū	5.00	ug/l
,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	Ξ <	10.0	U	10.0	ug/l
,1,2-TRICHLOROETHANE	<	5.00	Ū	5.00	ug/l
L,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
l,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
L,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5,00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	Ü	10.0	ug/l
2-HEXANONE	< ,	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5,00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5,00	ug/l
CARBON TETRACHLORIDE	<	5.00	Ū	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	Ū	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	Ū	5.00	ug/l
CYCLOHEXANE	<	5,00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: **D12-1-44** Sample ID: L12091201-07 Date Collected: 09/11/2012 1200

Date Received : 09/12/2012

Parameter		Result	Oua1	RDL	Units	
rarameter						
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		111	용	(74-140)		
Surr: BROMOFLUOROBENZENE		112	응	(77-133)		
Surr: TOLUENE-D8		112	용	(77-131)		
te/Time: 09/18/2012 1608 An	alyst: PAP		Dilutio	n: 1		
1,4-DIOXANE	<	10.0	U	10.0	ug/l	
Surr: 1,4-DIOXANE-D8		102	ક	(61-131)		



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: D12-15-69.5 Sample ID: L12091201-08 Date Collected: 09/11/2012 1635

Date Received : 09/12/2012

Result Qual \mathtt{RDL} Units Parameter

Matrix : GW/ChemW

Volatile Organics

te/Time: 09/14/2012 1315 An	alyst: PAP	D	ilution:	1	~~~~~~~~~~~~
1,1,1-TRICHLOROETHANE	<	5.00	Ŭ	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOR	OETHANE <	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	Ū	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5,00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	Ŭ	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	Ŭ	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	< .	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	Ŭ	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	Ū	5.00	ug/l
	<	5.00	U	5.00	ug/l



SULFIDE, TOTAL

Date/Time: 09/17/2012 1523

SM 4500-S2-D

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: D12-15-69.5 Sample ID: L12091201-08 Date Collected: 09/11/2012 1635 Date Received : 09/12/2012

Parameter		Result	Qua1	RDL	Units	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10,0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE		9.07		5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	Ŭ	5.00	ug/l	
TOLUENE	<	5.00	Ū	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	Ū	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		112	음	(74-140)		
Surr: BROMOFLUOROBENZENE		111	용	(77-133)		
Surr: TOLUENE-D8		111	ક	(77-131)		
Date/Time: 09/18/2012 1346	nalyst: PAP/JVB		Dilution	1: 10		
CHLOROFORM		1510		50.0	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		103	용	(74-140)		
Surr: BROMOFLUOROBENZENE		97	왕	(77-133)		
Surr: TOLUENE-D8		98	%	(77-131)		
t Chemistry						
A 353.2						
Date/Time: 09/12/2012 1459	Analyst: LES		Dilution	1: 2	***************************************	
NITRATE + NITRITE NITROGEN (A	•••••	2,42		0.0400	mg/l	
2320B						
Date/Time: 09/19/2012 1450	Analyst: CDC		Dilution	a: 1		
ALKALINITY, TOTAL		88.4		2.00	mg/l	
ENDPOINT PH		4.49			su	

0.0835

Analyst: CDC

Dilution: 1

0.0500

mg/1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 20 of 63 Report ID: AK2078

Certificate of Analysis

Client ID: D12-15-69.5 Sample ID: L12091201-08 Date Collected: 09/11/2012 1635

Date Received : 09/12/2012

Units RDLResult Qual Parameter

SW846 9056A

Dilution: 1 Date/Time: 09/13/2012 0635 Analyst: CDC

SULFATE



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 21 of 63 Report ID: AK2078

Certificate of Analysis

Client ID: TRIP BLANK #1 Sample ID: L12091201-09

Date Collected: 09/03/2012 0730

Date Received : 09/12/2012

Parameter

Result Qual RDL

Units

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/14/2012 0944 Analyst: P.	AP	Da	ilut:	ion: 1
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00 ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0 ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1~DICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1-DICHLOROETHENE	<	5.00	U	5,00 ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5,00 ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00 ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00 ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00 ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
2-BUTANONE	<	10.0	U	10.0 ug/l
2-HEXANONE	<	10.0	U	10.0 ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00 ug/l
ACETONE	<	10.0	U	10.0 ug/l
BENZENE	<	5.00	U	5.00 ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00 ug/l
BROMOFORM	<	5.00	U	5.00 ug/l
BROMOMETHANE	<	10.0	U	10.0 ug/l
CARBON DISULFIDE	<	5.00	U	5.00 ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00 ug/l
CHLOROBENZENE	<	5.00	U	5.00 ug/l
CHLOROETHANE	<	10.0	U	10.0 ug/l
CHLOROFORM	<	5.00	U	5.00 ug/l
CHLOROMETHANE	<	10.0	U	10.0 ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00 ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00 ug/l
CYCLOHEXANE	<	5.00	U	5.00 ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00 ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00 ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 22 of 63 Report ID: AK2078

Certificate of Analysis

Client ID: TRIP BLANK #1 Sample ID: L12091201-09

Date Collected: 09/03/2012 0730 Date Received : 09/12/2012

Parameter		Result	Qual	RDL	Units
				5 00	/1
ETHYLBENZENE	<	5,00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		106	음	(74-140)	
Surr: BROMOFLUOROBENZENE		107	용	(77-133)	
Surr: TOLUENE-D8		109	용	(77-131)	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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Certificate of Analysis

Client ID: TRIP BLANK #2 Sample ID: L12091201-10

Date Collected: 09/03/2012 0730

Date Received : 09/12/2012

Units Result RDLParameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Dilution: 1 Date/Time: 09/18/2012 1228 Analyst: PAP ug/l 10.0 U 10.0 1,4-DIOXANE

Surr: 1,4-DIOXANE-D8

98 %

(61-131)



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012 Page 24 of 63 Report ID: AK2078

QC Summary Data



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Batch Sample List

WorkGroup : WG63188 Description: VO/8260/TCL Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

:

	PREP	ANALYTICAL		
Run#	Date Time	Date Time	Analyst	Dilution
/MSD 1		09/14/2012 1011	PAP	1
1		09/14/2012 1037	PAP	1
1		09/14/2012 1103	PAP	1
1		09/14/2012 1129	PAP	1
1		09/14/2012 1155	PAP	1
1		09/14/2012 1222	PAP	1
1		09/14/2012 1248	PAP	1
1		09/14/2012 1315	PAP	1
#1 1		09/14/2012 0944	PAP	1
ık 1		09/14/2012 0918	PAP	1
Control Spike 1		09/14/2012 1500	PAP	1
te 1		09/14/2012 1407	PAP	1
		09/14/2012 1433	PAP	1
	#1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	#1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 09/14/2012 1011 1 09/14/2012 1037 1 09/14/2012 1103 1 09/14/2012 1129 1 09/14/2012 1155 1 09/14/2012 1222 1 09/14/2012 1248 1 09/14/2012 1248 1 09/14/2012 1315 #1 1 09/14/2012 0944 ak 1 09/14/2012 0918 Control Spike 1 09/14/2012 1500 te 1 09/14/2012 1407	MSD



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012 Page 26 of 63 Report ID: AK2078

QC Batch Report - Surrogates % Recovery

WorkGroup: WG63188

Matrix : GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DCA	BPB	TOL
		74-140	77-133	77-131
L12091201-01	09/14/2012 1011	107	109	108
L12091201-02	09/14/2012 1037	107	110	109
L12091201-03	09/14/2012 1103	108	110	110
L12091201-04	09/14/2012 1129	111	112	112
L12091201-05	09/14/2012 1155	111	113	112
L12091201-06	09/14/2012 1222	113	112	112
L12091201-07	09/14/2012 1248	111	112	112
L12091201-08	09/14/2012 1315	112	111	111
L12091201-09	09/14/2012 0944	106	107	109
MB63188:1	09/14/2012 0918	103	106	107
LCS63188:1	09/14/2012 1500	112	117	115
MS12091201-01:63188	09/14/2012 1407	113	118	114
MSD12091201-01:63188	09/14/2012 1433	110	117	111

DCA - 1,2-DICHLOROETHANE-D4

BFB - BROMOFLUOROBENZENE

TOL - TOLUENE-D8



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63188 Blank : MB63188:1

Result Qual Parameter

Matrix : GW/ChemW

Volatile Organics

te/Time: 09/14/2012 0918 Analyst: P.	AP	D	ilution	: 1		
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5,00	ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5,00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5,00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5,00	U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM	<	5.00	U	5.00	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD. SUITE 170

ROSWELL, GA 30076

Report Date : September 27, 2012

Contact : BRYON DAHLGREN

Page 28 of 63 Report ID: AK2078

QC Batch Report - Method Blanks

WorkGroup: WG63188 Blank : MB63188:1

Parameter		Result	Qua1	RDL	Units
					4-
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l
ETHYLBENZENE	<	5,00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5,00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	1.0.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		103	용	(74-140)	
Surr: BROMOFLUOROBENZENE		106	용	(77-133)	
Surr: TOLUENE-D8		107	용	(77-131)	
Date. Tohobke Do					



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

Page 29 of 63 Report ID: AK2078

QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63188

MS/MSD : MS12091201-01:63188

MSD12091201-01:63188

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	Sample	MS		MS	Limits
Parameter	Added	Conc	Conc	Units	%REC	%REC
1,1,1-TRICHLOROETHANE	50.00	< 5.00	52.09	ug/l	104	75-121
1,1,2,2-TETRACHLOROETHANE	50.00	< 5.00	49.91	ug/l	100	78-114
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	< 10.00	45.83	ug/l	92	64-130
1,1,2-TRICHLOROETHANE	50.00	< 5.00	48.92	ug/l	98	78-113
1,1-DICHLOROETHANE	50.00	< 5.00	49.20	ug/l	98	76-116
1,1-DICHLOROETHENE	50.00	< 5.00	49.11	ug/l	98	71-127
1,2,3-TRICHLOROBENZENE	50.00	< 5.00	47.44	ug/l	95	75-112
1,2,4-TRICHLOROBENZENE	50.00	< 5.00	48.06	ug/l	96	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	< 5.00	48.38	ug/l	97	73-124
1,2-DIBROMOETHANE	50.00	< 5.00	48.62	ug/l	97	79-114
1,2-DICHLOROBENZENE	50.00	< 5.00	48.66	ug/l	97	76-109
1,2-DICHLOROETHANE	50.00	< 5.00	52.59	ug/l	105	74-122
1,2-DICHLOROPROPANE	50.00	< 5.00	48.50	ug/l	97	79-113
1,3-DICHLOROBENZENE	50.00	< 5.00	49.65	ug/l	99	69-118
1,4-DICHLOROBENZENE	50.00	< 5.00	47.73	ug/l	95	74-108
2-BUTANONE	50.00	< 10.00	48.80	ug/l	98	68-134
2-HEXANONE	50.00	< 10,00	49.08	ug/l	98	70-133
4-METHYL-2-PENTANONE	50.00	< 5.00	48.52	ug/l	97	69-135
ACETONE	50.00	< 10.00	47.41	ug/l	95	64-149
BENZENE	50.00	< 5.00	48.95	ug/l	98	77-114
BROMODICHLOROMETHANE	50.00	< 5.00	51,03	ug/l	102	76-123
BROMOFORM	50.00	< 5.00	49.90	ug/l	100	74-124
BROMOMETHANE	50.00	< 10.00	47.45	ug/l	95	64-121
CARBON DISULFIDE	50.00	< 5.00	41.34	ug/l	83	59-124
CARBON TETRACHLORIDE	50.00	< 5.00	53.18	ug/l	106	72-126
CHLOROBENZENE	50.00	< 5.00	48.91	ug/l	98	74-113
CHLOROETHANE	50.00	< 10.00	45.28	ug/l	91	71-121
CHLOROFORM	50.00	< 5.00	50.61	ug/l	101	76-119
CHLOROMETHANE	50.00	< 10.00	46.82	ug/l	94	59-123
CIS-1,2-DICHLOROETHENE	50.00	< 5.00	49.71	ug/l	99	74-118
CIS-1,3-DICHLOROPROPENE	50.00	< 5.00	52.45	ug/l	105	83-125
CYCLOHEXANE	50.00	< 5.00	48.07	ug/l	96	59-126
DIBROMOCHLOROMETHANE	50.00	< 5.00	51.16	ug/l	102	77-121
DICHLORODIFLUOROMETHANE	50.00	< 5.00	58.65	ug/l	117	53-141
ETHYLBENZENE	50.00	< 5.00	50.48	ug/l	101	70-130
ISOPROPYL BENZENE	50.00	< 5.00	50,81	ug/l	102	74-114
METHYL ACETATE	50.00	< 10.00	42.80	ug/l	86	68-122
METHYL-TERT-BUTYL ETHER	50.00	< 5.00	49.16	ug/1	98	74-119



Parameter

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date

: September 27, 2012

Page 30 of 63 Report ID: AK2078

QC Batch Report - Matrix Spikes and Duplicates

Spike

Added

WorkGroup: WG63188

MS/MSD : MS12091201-01:63188

MSD12091201-01:63188

Matrix

MS

Conc

: GW/ChemW

MS

%REC

Limits

%REC

Prep Method

Analtyical Method: SW846 8260B

Units

Parameter	Added		999 9949		500000000000000000000000000000000000000		
METHYLCYCLOHEXANE	50.00	< 5.00	50.85	ug/l	102	61-12	
METHYLENE CHLORIDE	50.00	< 5.00	44.53	ug/l	89	71-11	
STYRENE	50.00	< 5.00	47.93	ug/l	96	75-11	
TETRACHLOROETHENE	50.00	< 5.00	49.70	ug/l	99	69-12	
TOLUENE	50.00	< 5.00	50.54	ug/l	101	74-11	
TRANS-1,2-DICHLOROETHENE	50.00	< 5.00	47.81	ug/l	96	74-11	
TRANS-1,3-DICHLOROPROPENE	50.00	< 5.00	48.08	ug/l	96	73-11	
TRICHLOROETHENE	50.00	< 5.00	48.44	ug/l	97	74-12	
TRICHLOROFLUOROMETHANE	50.00	< 5.00	52.57	ug/l	105	70-13	
VINYL ACETATE	50.00	< 10.00	47.44	ug/l	95	59-14	
VINYL CHLORIDE	50.00	< 10.00	48.41	ug/l	97	63-12	
XYLENE (TOTAL)	150.0	< 5.00	148.3	ug/l	99	73-13	16
					5550 000 000 000 000 000 000 000 000 00	000000000000000000000000000000000000000	0.000.000.000.000.000.000.0000.0000.0000
	Spike	MSD		MSD		Limít	
Parameter	Added	Cond	Units	%REC	%RPD	%RPD	%REC
1,1,1-TRICHLOROETHANE	50.00	55.78	ug/l	112	7	16	75-121
1,1,2,2-TETRACHLOROETHANE	50.00	55.29	ug/l	111	10	18	78-114
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	47.79	ug/l	96	4	18	64-130
1,1,2-TRICHLOROETHANE	50.00	52.65	ug/l	105	7	14	78-113
1,1-DICHLOROETHANE	50.00	52.75	ug/l	106	7	15	76-116
1,1-DICHLOROETHENE	50.00	53.06	ug/l	106	8	16	71-127
1,2,3-TRICHLOROBENZENE	50.00	50.83	ug/l	102	7	20	75-112
1,2,4-TRICHLOROBENZENE	50.00	51,55	ug/l	103	7	18	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	53.48	ug/l	107	10	20	73-124
1,2-DIBROMOETHANE	50.00	52.53	ug/l	105	8	16	79-114
1,2-DICHLOROBENZENE	50.00	51.89	ug/l	104	6	15	76-109
1,2-DICHLOROETHANE	50.00	56,12	ug/l	112	6	16	74-122
1,2-DICHLOROPROPANE	50.00	53.28	ug/l	107	9	15	79-113
1,3-DICHLOROBENZENE	50.00	53.78	ug/l	108	8	17	69-118
1,4-DICHLOROBENZENE	50.00	51.34	ug/l	103	7	16	74-108
2-BUTANONE	50.00	50.73	ug/l	101	4	20	68-134
2-HEXANONE	50.00	53.07	ug/l	106	8	20	70-133
4-METHYL-2-PENTANONE	50.00	51.78	ug/l	104	7	19	69-135
ACETONE	50.00	48.68	ug/l	97	3	23	64-149
BENZENE	50.00	52.45	ug/l	105	7	15	77-114
BROMODICHLOROMETHANE	50.00	54.95	ug/l	110	7	16	76-123
BROMOFORM	50.00	55.97	ug/l	112	11	17	74-124
BROMOMETHANE	50.00	50,94	ug/l	102	7	22	64-121

Sample

Conc



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63188

MS/MSD : MS12091201-01:63188

MSD12091201-01:63188

 ${\tt Matrix}$

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

Farameter	36	CONTRACTOR	%RPD	%REC
/3		4		AND
CARBON DISULFIDE 50.00 42.90 ug/l 8	112	*	21	59-124
CARBON TETRACHLORIDE 50.00 55.82 ug/l 1	LIZ	5	18	72-126
CHLOROBENZENE 50.00 52.91 ug/l 1	106	8	15	74-113
CHLOROETHANE 50.00 49.74 ug/l 9	99	9	17	71-121
CHLOROFORM 50.00 53.63 ug/l 1	107	6	14	76-119
CHLOROMETHANE 50.00 51.85 ug/l 1	104	10	18	59-123
CIS-1,2-DICHLOROETHENE 50.00 53.02 ug/l 1	106	6	15	74-118
CIS-1,3-DICHLOROPROPENE 50.00 56.21 ug/l 1	112	7	16	83-125
CYCLOHEXANE 50.00 50.38 ug/l 1	101	5	17	59-126
DIBROMOCHLOROMETHANE 50.00 55.30 ug/l 1	111	8	16	77-121
DICHLORODIFLUOROMETHANE 50.00 59.76 ug/l 1	120	2	20	53-141
ETHYLBENZENE 50.00 53.91 ug/l 1	108	7	20	70-130
ISOPROPYL BENZENE 50.00 55.07 ug/l 1	110	8	17	74-114
METHYL ACETATE 50.00 47.70 ug/l	95	11	19	68-122
METHYL-TERT-BUTYL ETHER 50.00 52.83 ug/l 1	106	7	16	74-119
METHYLCYCLOHEXANE 50.00 52.57 ug/l 1	105	3	16	61-126
METHYLENE CHLORIDE 50.00 49.10 ug/l 5	98	10	17	71-115
STYRENE 50.00 52.53 ug/l 1	105	9	17	75-116
TETRACHLOROETHENE 50.00 53.44 ug/l 1	107	7	16	69-121
TOLUENE 50.00 53.47 ug/l 1	107	6	15	74-115
TRANS-1,2-DICHLOROETHENE 50.00 51.66 ug/l 1	103	8	16	74-119
TRANS-1,3-DICHLOROPROPENE 50.00 51.92 ug/l 1	104	8	16	73-112
TRICHLOROETHENE 50.00 52.87 ug/l 1	106	9	15	74-120
TRICHLOROFLUOROMETHANE 50.00 54.69 ug/l 1	109	4	18	70-134
VINYL ACETATE 50.00 49.23 ug/l	98	4	19	59-146
VINYL CHLORIDE 50.00 53.25 ug/l	107	10	16	63-124
XYLENE (TOTAL) 150.0 160.5 ug/l	107	8	17	73-116

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63188

LCS

: LCS63188:1

 ${\tt Matrix}$

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	LCS		LCS	Limits	
Parameter	Added	Conc	Units	%REC	%REC	
1,1,1-TRICHLOROETHANE	50.00	54,65	ug/l	109	76-120	
1,1,2,2-TETRACHLOROETHANE	50.00	53.46	ug/l	107	78-116	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	47.63	ug/l	95	65~125	
1,1,2-TRICHLOROETHANE	50.00	53.47	ug/l	107	78-117	
1,1-DICHLOROETHANE	50.00	52.17	ug/l	104	75-117	
1,1-DICHLOROETHENE	50.00	51.62	ug/l	103	72-125	
1,2,3-TRICHLOROBENZENE	50.00	50.96	ug/l	102	75-113	
1,2,4-TRICHLOROBENZENE	50.00	51.40	ug/l	103	76-114	
1,2-DIBROMO-3-CHLOROPROPANE	50.00	54.48	ug/l	109	77-122	
1,2-DIBROMOETHANE	50.00	53,28	ug/l	107	80-116	
1,2-DICHLOROBENZENE	50.00	51.39	ug/l	103	76-110	
1,2-DICHLOROETHANE	50.00	55.51	ug/l	111	75-121	
1,2~DICHLOROPROPANE	50.00	52.54	ug/l	105	79-115	
1,3-DICHLOROBENZENE	50.00	53.11	ug/l	106	74-113	
1,4-DICHLOROBENZENE	50.00	50.33	ug/l	101	74-109	
2-BUTANONE	50.00	52.04	ug/l	104	72-129	
2-HEXANONE	50.00	53.85	ug/l	108	73-132	
4-METHYL-2-PENTANONE	50.00	53.67	ug/l	107	75-131	
ACETONE	50.00	50.89	ug/l	102	70-138	
BENZENE	50,00	52.36	ug/l	105	77-116	
BROMODICHLOROMETHANE	50.00	54.97	ug/l	110	79-120	
BROMOFORM	50.00	55.06	ug/l	110	79-121	
BROMOMETHANE	50.00	55.37	ug/l	111	67-122	
CARBON DISULFIDE	50,00	44.28	ug/l	89	59-125	
CARBON TETRACHLORIDE	50.00	54.61	ug/l	109	74-124	
CHLOROBENZENE	50.00	52.52	ug/l	105	75-113	
CHLOROETHANE	50.00	49.80	ug/l	100	73-120	
CHLOROFORM	50.00	53.52	ug/l	107	75-121	
CHLOROMETHANE	50.00	51.79	ug/l	104	60-122	
CIS-1,2-DICHLOROETHENE	50.00	52.21	ug/l	104	74-119	
CIS-1,3-DICHLOROPROPENE	50.00	56.47	ug/l	113	83-126	
CYCLOHEXANE	50.00	48.45	ug/l	97	60-123	
DIBROMOCHLOROMETHANE	50.00	55.56	ug/l	111	779-121	
DICHLORODIFLUOROMETHANE	50.00	59.16	ug/l	118	55-139	
ETHYLBENZENE	50.00	52.74	ug/l	105	70-130	
ISOPROPYL BENZENE	50.00	53.51	ug/l	107	74-113	
METHYL ACETATE	50.00	50.34	ug/l	101	67-123	
METHYL-TERT-BUTYL ETHER	50.00	52.52	ug/l	105	75-120	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63188 : LCS63188:1 LCS

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	LCS		rcs	Limits
Parameter	Added	Conc	Units	%REC	%REC
METHYLCYCLOHEXANE	50.00	51,89	ug/l	104	62-123
METHYLENE CHLORIDE	50.00	48.73	ug/l	97	70-120
STYRENE	50.00	51.69	ug/l	103	78-113
TETRACHLOROETHENE	50.00	53.30	ug/l	107	70-120
TOLUENE	50.00	53.26	ug/l	107	75-116
TRANS-1,2-DICHLOROETHENE	50.00	50.38	ug/l	101	73-121
TRANS-1,3-DICHLOROPROPENE	50.00	51.93	ug/l	104	73-114
TRICHLOROETHENE	50.00	52.76	ug/l	106	75-119
TRICHLOROFLUOROMETHANE	50.00	53,55	ug/l	107	71-128
VINYL ACETATE	50.00	50.29	ug/l	101	65-142
VINYL CHLORIDE	50.00	52.97	ug/l	106	64-122
XYLENE (TOTAL)	150.0	157.9	ug/l	105	73-116



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : September 27, 2012

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QC Batch Report - Batch Sample List

WorkGroup : WG63204 Description: VO/DIOXANE Matrix

: GW/ChemW

Prep Method

: Analtyical Method: SW846 8260B

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091201-01	D12-3-39 MS/MSD	2		09/18/2012 1255	PAP	1
L12091201-02	D12-3-39A	2		09/18/2012 1513	PAP	1
L12091201-03	D12-4-44	2		09/18/2012 1541	PAP	1
L12091201-07	D12-1-44	2		09/18/2012 1608	PAP	1
L12091201-10	TRIP BLANK #2	1		09/18/2012 1228	PAP	1
MB63204:1	Method Blank	1		09/18/2012 1148	PAP	1
LCS63204:1	Laboratory Control Spike	1		09/18/2012 1759	PAP	1
MS12091201-01:63204	Matrix Spike	1		09/18/2012 1704	PAP	1
MSD12091201-01:63204	Matrix Spike Duplicate	1		09/18/2012 1731	PAP	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Surrogates % Recovery

WorkGroup: WG63204

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DOXD8
		61-131
L12091201-01	09/18/2012 1255	100
L12091201-02	09/18/2012 1513	105
L12091201-03	09/18/2012 1541	104
L12091201-07	09/18/2012 1608	102
L12091201-10	09/18/2012 1228	98
MB63204:1	09/18/2012 1148	90
LCS63204:1	09/18/2012 1759	107
MS12091201-01:63204	09/18/2012 1704	110
MSD12091201-01:63204	09/18/2012 1731	113

DOXD8 - 1,4-DIOXANE-D8



SC Certification Number: 24110001

Client : AECOM

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ROSWELL, GA 30076 Contact : BRYON DAHLGREN

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QC Batch Report - Method Blanks

WorkGroup: WG63204 : MB63204:1 Blank

Result Qual Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Dilution: 1 Analyst: PAP Date/Time: 09/18/2012 1148 ug/l 10.0 U 1,4-DIOXANE

Surr: 1,4-DIOXANE-D8

90 %

(61-131)



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63204

MS/MSD : MS12091201-01:63204

MSD12091201-01:63204

: GW/ChemW Matrix

Prep Method

Analtyical Method: SW846 8260B

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %RBC
1,4-DIOXANE	100.0	< 10.00	106.2	ug/l	106	63-132
	Spike	MSD		MSD		Limits
Parameter	Added	Conc	Units	%REC	%RPD	%RPD %REC
1,4-DIOXANE	100.0	112.8	ug/l	113	6	18 63-132

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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Client : AECOM

1455 OLD ALABAMA RD.

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63204

LCS : LCS63204:1

Matrix : 0

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

Parameter	Spike Added	LCS Conc	Units	LCS %REC	Limits %REC
1.4-DIOXANE	100.0	108.7	ug/l	109	67-133



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Batch Sample List

WorkGroup : WG63217 Description: VO/8260/TCL Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

Sample ID Client ID			PREP	ANALYTICAL		
	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091201-06	D12-10-58.5	2		09/18/2012 1319	PAP/JVB	10
L12091201-08	D12-15-69.5	2		09/18/2012 1346	PAP/JVB	10
MB63217:1	Method Blank	1		09/18/2012 1121	PAP/JVB	1
LCS63217:1	Laboratory Control Spike	1		09/18/2012 1514	PAP/JVB	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

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Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Surrogates % Recovery

WorkGroup: WG63217

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DCA 74-140	BFB 77-133	TOL 77-131
L12091201-06	09/18/2012 1319	104	95	96
L12091201-08	09/18/2012 1346	103	97	98
MB63217:1	09/18/2012 1121	102	97	97
LCS63217:1	09/18/2012 1514	101	101	100

DCA - 1,2-DICHLOROETHANE-D4 BFB - BROMOFLUOROBENZENE

TOL - TOLUENE-D8



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Client : AECOM

1455 OLD ALABAMA RD.

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ROSWELL, GA 30076

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QC Batch Report - Method Blanks

WorkGroup: WG63217 : MB63217:1 Blank

			- March		
Parameter	Result	Qua1	RDL	Units	
1 41 411 551					

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

e/Time: 09/18/2012 1121 Analyst:	PAP/JVB		ilution	1: 1		
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHAN	E <	10.0	Ŭ	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	Ŭ	5.00	ug/l	
1,1-DICHLOROETHENE	<	5.00	Ŭ	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5,00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	Ū	5.00	ug/l	
1,3-DICHLOROBENZENE	<	5,00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5.00	U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM	<	5.00	U	5.00	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	Ŭ	5.00	ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Method Blanks

WorkGroup: WG63217 Blank : MB63217:1

		Result	Qual	RDL	Units
Parameter		RESULC	Quar	102	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5,00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5,00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	Ŭ	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		102	음	(74-140)	
Surr: BROMOFLUOROBENZENE		97	응	(77-133)	
Surr: TOLUENE-D8		97	용	(77-131)	



SC Certification Number: 24110001

Client : AECOM

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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63217 LCS : LCS63217:1 Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	LCS		LCS	Limits
Parameter	Added	Conc	Units	%REC	%rec
1,1,1-TRICHLOROETHANE	50.00	53.51	ug/l	107	76-120
1,1,2,2-TETRACHLOROETHANE	50,00	50.95	ug/l	102	78-116
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	53.14	ug/l	106	65-125
1,1,2-TRICHLOROETHANE	50.00	52.67	ug/l	105	78-117
1,1-DICHLOROETHANE	50.00	53.03	ug/l	106	75-117
1,1-DICHLOROETHENE	50.00	56,52	ug/l	113	72-125
1,2,3-TRICHLOROBENZENE	50.00	48.79	ug/l	98	75-113
1,2,4-TRICHLOROBENZENE	50,00	50.97	ug/l	102	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	49.62	ug/l	99	77-122
1,2-DIBROMOETHANE	50.00	53.26	ug/l	107	80-116
1,2-DICHLOROBENZENE	50,00	51.97	ug/l	104	76-110
1,2-DICHLOROETHANE	50.00	54.38	ug/l	109	75-121
1,2-DICHLOROPROPANE	50.00	53.56	ug/l	107	79-115
1,3-DICHLOROBENZENE	50.00	51.92	ug/l	104	74-113
1,4-DICHLOROBENZENE	50.00	51,68	ug/l	103	74-109
2-BUTANONE	50.00	49.10	ug/l	98	72-129
2-HEXANONE	50.00	47.68	ug/l	95	73-132
4-METHYL-2-PENTANONE	50.00	49.27	ug/l	99	75-131
ACETONE	50.00	49.38	ug/l	99	70-138
BENZENE	50.00	53.74	ug/l	107	77-116
BROMODICHLOROMETHANE	50.00	54.39	ug/l	109	79-120
BROMOFORM	50.00	53.93	ug/l	108	79-121
BROMOMETHANE	50.00	61.03	ug/l	122	67-122
CARBON DISULFIDE	50.00	49.59	ug/l	99	59-125
CARBON TETRACHLORIDE	50.00	54.80	ug/l	110	74-124
CHLOROBENZENE	50.00	52.92	ug/l	106	75-113
CHLOROETHANE	50.00	56.80	ug/l	114	73-120
CHLOROFORM	50.00	54.19	ug/l	108	75-121
CHLOROMETHANE	50.00	55.40	ug/l	111	60-122
CIS-1,2-DICHLOROETHENE	50.00	54.45	ug/l	109	74-119
CIS-1,3-DICHLOROPROPENE	50.00	58.23	ug/l	116	83-126
CYCLOHEXANE	50.00	51.99	ug/l	104	60-123
DIBROMOCHLOROMETHANE	50.00	54.26	ug/l	109	779-121
DICHLORODIFLUOROMETHANE	50.00	66.57	ug/l	133	55-139
ETHYLBENZENE	50.00	53.32	ug/l	107	70-130
ISOPROPYL BENZENE	50.00	52.05	ug/l	104	74-113
METHYL ACETATE	50.00	49.57	ug/l	99	67-123
METHYL-TERT-BUTYL ETHER	50.00	50.63	ug/l	101	75-120



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63217 : LCS63217:1 LCS

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	LCS		LCS	Limits
Parameter	bebba	Conc	Units	%REC	%rec
METHYLCYCLOHEXANE	50.00	54.85	ug/l	110	62-123
METHYLENE CHLORIDE	50.00	53.26	ug/l	107	70-120
STYRENE	50.00	54.07	ug/l	108	78-113
TETRACHLOROETHENE	50.00	52,73	ug/l	105	70-120
TOLUENE	50.00	53,00	ug/l	106	75-116
TRANS-1,2-DICHLOROETHENE	50.00	53.59	ug/l	107	73-121
TRANS-1,3-DICHLOROPROPENE	50.00	52.04	ug/l	104	73-114
TRICHLOROETHENE	50.00	53.37	ug/l	107	75-119
TRICHLOROFLUOROMETHANE	50.00	59.27	ug/l	119	71-128
VINYL ACETATE	50.00	51.36	ug/l	103	65-142
VINYL CHLORIDE	50.00	58.40	ug/l	117	64-122
XYLENE (TOTAL)	150.0	158.9	ug/l	106	73-116



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Batch Sample List

WorkGroup : WG63169 Description: WC/NO3NO2 Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091201-04	D12-15-49	1		09/12/2012 1447	LES	2
L12091201-05	D12-14-49	1		09/12/2012 1455	LES	2
L12091201-06	D12-10-58.5	1		09/12/2012 1519	LES	5
L12091201-08	D12-15-69.5	1		09/12/2012 1459	LES	2
MB63169:1	Method Blank	1		09/12/2012 1354	LES	1
LCS63169:1	Laboratory Control Spike	1		09/12/2012 1347	LES	1
MS12091001-01:63169	Matrix Spike	1		09/12/2012 1413	LES	2
MS12091201-04:63169	Matrix Spike	1		09/12/2012 1450	LES	2
MSD12091001-01:63169	Matrix Spike Duplicate	1		09/12/2012 1416	LES	2
MSD12091201-04:63169	Matrix Spike Duplicate	1		09/12/2012 1452	LES	2



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Method Blanks

WorkGroup: WG63169 : MB63169:1 Blank

Parameter

Result Qual

Matrix : GW/ChemW

Wet Chemistry

EPA 353.2

mg/l

Date/Time: 09/12/2012 1354 Analyst: LES NITRATE + NITRITE NITROGEN (AS N)

0.0200 U

0.0200



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63169

MS/MSD : MS12091001-01:63169

MSD12091001-01:63169

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	1.75	2.76	mg/l	100	90-110
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	2.74	mg/l	99	1	10 90-110

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

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Contact : BRYON DAHLGREN

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63169

MS/MSD : MS12091201-04:63169

MSD12091201-04:63169

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC	
NITRATE + NITRITE NITROGEN (AS N)	1.00	1.78	2.89	mg/l	110	90-110	
	Spike	MSD		MSD		Limits	
Parameter	Added	Conc	Units	%REC	%RPD	%RPD %REC	2003
NITRATE + NITRITE NITROGEN (AS N)	1.00	2.87	mg/l	109	1	10 90-110	

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63169 LCS

: LCS63169:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	LCS Conc	Units	LCS %REC	Limits %REC
NITRATE + NITRITE NITROGEN (AS N)	0.500	0.484	mg/l	97	90-110



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Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Batch Sample List

WorkGroup : WG63254 Description: Alkalinity Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091201-04	D12-15-49	1		09/19/2012 1417	CDC	1
L12091201-05	D12-14-49	1		09/19/2012 1423	CDC	1
T-1 2091 201 - 06	D12-10-58.5	1		09/19/2012 1443	CDC	1
L12091201-08	D12-15-69.5	1		09/19/2012 1450	CDC	1
D12091001-01:63254	Duplicate	1		09/19/2012 1053	CDC	1
D12091701-04:63254	Duplicate	1		09/19/2012 1539	CDC	1
MB63254:1	Method Blank	1		09/19/2012 0952	CDC	1
LCS63254:1	Laboratory Control Spike	1		09/19/2012 0959	CDC	1



SC Certification Number: 24110001

Client : AECOM

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1455 OLD ALABAMA RD.

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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : September 27, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63254 Blank : MB63254:1

Parameter

Units

Matrix : GW/ChemW

Wet Chemistry

SM 2320B

Date/Time: 09/19/2012 0952 ALKALINITY, TOTAL

Analyst: CDC

Dilution: 1

mg/11.00

ENDPOINT PH

4.16

1.00 U

su



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63254

LCS : LCS63254:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Spike Added		Units		Limits %REC
ALKALINITY, TOTAL	1000	974.9	mg/l	97	90-110



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Sample Duplicates

WorkGroup: WG63254

Duplicate: D12091001-01:63254

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Sample Conc	DUP Conc	RDL	Units	RPD %RPD
ALKALINITY, TOTAL	0.00	0.00	1.00	mg/l	10

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



SC Certification Number: 24110001

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1455 OLD ALABAMA RD.

SUITE 170

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Contact : BRYON DAHLGREN

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QC Batch Report - Sample Duplicates

WorkGroup: WG63254

Duplicate: D12091701-04:63254

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Sample Conc	DUP Conc	RDL	Units	%RPD	RPD	
ALKALINITY, TOTAL	69.35	68.34	2.00	mg/l	1	10	

NOTE: Calculation of %RPD is not required for concentrations less than 10X the RDL.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Batch Sample List

WorkGroup : WG63215 Description: Sulfide Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

			PREP	ANALYTIC	CAL	
Sample ID	Client ID	Run#	Date Time	Date Ti	ime Analyst	Dilution
L12091201-04	D12-15-49	1		09/17/2012 15	520 CDC	1
L12091201-05	D12-14-49	1		09/17/2012 15	521 CDC	1
L12091201-06	D12-10-58.5	1		09/17/2012 19	522 CDC	1
L12091201-08	D12-15-69.5	1		09/17/2012 15	523 CDC	1
MB63215:1	Method Blank	1		09/17/2012 19	533 CDC	1
LCS63215:1	Laboratory Control Spike	1		09/17/2012 1	519 CDC	
MS12091701-04:63215	Matrix Spike	1		09/17/2012 15	530 CDC	1
MS12091701-11:63215	Matrix Spike	1		09/17/2012 15	536 CDC	1
MSD12091701-04:63215	Matrix Spike Duplicate	1		09/17/2012 1	531 CDC	3
MSD12091701-11:63215	Matrix Spike Duplicate	1		09/17/2012 1	537 CDC	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

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Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63215 Blank : MB63215:1

Parameter

Units

Matrix : GW/ChemW

Wet Chemistry SM 4500-S2-D Date/Time: 09/17/2012 1533 Analyst: CDC Dilution: 1 0.0500 mg/l 0.0500 U SULFIDE, TOTAL



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : September 27, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63215

Matrix

: GW/ChemW

MS/MSD : MS12091701-04:63215

Prep Method

MSD12091701-04:63215

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
SULFIDE, TOTAL	0.500 <	0.0500	0.534	mg/l	107	81-121
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
SULFIDE, TOTAL	0.500	0.517	mg/l	103	3	10 81-121

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63215

MS/MSD : MS12091701-11:63215

MSD12091701-11:63215

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
SULFIDE, TOTAL	0.500	< 0.0500	0.493	mg/l	99	81-121
	Spike	MSD		MSD		Limits
Parameter	Added	Conc	Units	%REC	%RPD	%RPD %REC
SULFIDE, TOTAL	0.500	0.503	mg/l	101	2	10 81-121

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63215 LCS

: LCS63215:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter		LCS Conc				
SULFIDE, TOTAL	0.500	0.511	mg/1	102	90-110	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Batch Sample List

WorkGroup : WG63172 Description: IC-GW

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091201-04	D12-15-49	1		09/13/2012 0503	CDC	1
L12091201-05	D12-14-49	1		09/13/2012 0534	CDC	1
L12091201-06	D12-10-58.5	1		09/13/2012 0604	CDC	1
L12091201-08	D12-15-69.5	1		09/13/2012 0635	CDC	1
MB63172:1	Method Blank	1		09/12/2012 1110	CDC	1
LCS63172:1	Laboratory Control Spike	1		09/12/2012 1140	CDC	1
MS12091001-01:63172	Matrix Spike	1		09/12/2012 2156	CDC	1
MSD12091001-01:63172	Matrix Spike Duplicate	1		09/12/2012 2226	CDC	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Method Blanks

WorkGroup: WG63172 : MB63172:1 Blank

Parameter

Result

Qual

RDL

Units

Matrix : GW/ChemW

Wet Chemistry

SW846 9056A

W846 9056A

Date/Time: 09/12/2012 1110 Analyst: CDC Dilution: 1
- 1.00 U 1.00 mg.

mg/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63172

MS/MSD : MS12091001-01:63172

MSD12091001-01:63172

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC	
SULFATE	10.00	< 1.00	9.84	mg/l	98	80-120	
	Spike	MSD		MSD		Limits	
Parameter SULFATE	Added 10.00	Conc 9.86	Units mg/l	%REC 99	%RPD 0	% RPD % REC 15 80-120	

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : September 27, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63172

LCS

: LCS63172:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

Parameter	Spike Added		Units		Limits %REC
SULFATE	10.00	9.85	mg/1	99	80-120



Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RDL MDL Method Detection Limit Report Detection Limit PQL **Practical Quantitation Limit** DL **Detection Limit** LOD Limit of Detection LOQ Limit of Quantitation TIC Tentatively Identified Compound SQL Sample Quantitation Limit Degrees Centigrade Degrees Fahrenheit С

umhos/cm micromhos/cm meq milliequivalents

su Standard Units

mg/l, mg/kg Units of concentration in milligrams per liter for liquids and milligrams per kilogram for solids. Also

referred to as Parts Per Million or "ppm".

ug/l, ug/kg Units of concentration in micrograms per liter for liquids and micrograms per kilograms for solids.

Also referred to as Parts Per Billion or "ppb".

Less ThanGreater Than

Solid samples (i.e. soil, sludge, and solid waste) are reported on an as received basis unless otherwise noted.

Data Qualifiers:

- B Analyte also detected in the method blank.
- C Amendable Cyanide is a negative value due to an unknown interference.
- F Surrogate Standard Recovery exceeds the laboratory established acceptance limits.
- J The reported result is an estimated value (eg matrix interference observed or concentration outside the quantitation range.
- N Non-target analyte. The analyte is TIC (using mass spectrometry).
- P Concentration difference between primary and confirmation columns >40%.
- Q One or more quality control criteria failed (e.g., LCS recovery, surrogate spike recovery or CCV
- U Final concentration is below the detection limit.
- * Defined in report comments.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or biological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of the material involved, the test results will be meaningless. If you have any questions regarding the proper techniques of collecting samples, please contact us. However, we cannot be held responsible for sample integrity unless sampling has been performed by a member of our staff.

<u>REPRESENTATION AND LIMITATION OF LIABILITY</u> – The accuracy of all analytical results for samples begins as it is received by the laboratory. Integrity of the sample begins at the time it is placed in the possession of authorized Davis & Floyd, Inc. Laboratories personnel. All other warranties, expressed or implied, are disclaimed. Liability is limited to the cost of the analysis.



Chain of Custody Record

Page.

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Contact Client AECOM Collected By 012-18-69:5 70.3 012-1-44 27 012-3-39-250 1/2-3 Mark Hartford 2-3-39-85 5.85-01-30 12-3-3 Sample Description Ş * NOTICE: Nar 139-0 てて <u>.</u>0 9-11-1 7-11-72 Auriga - Sptbg, SC 061576.08 Project / Site Location Martine ! Date 質 17/0 Initiated Bryon Dahlgren Time Date Time 11-11-6 7-19-17 9-18-12 9-10-12 21.016 97072 9-11-2 125 1,7,7 Relinquished B) 9-10-12 9-10-12 210-12 Sample Collection Date Composite Sampling Only 0720 1700 1245 2220 1635 1215 1655 0400 1016 0/0 1610 ime Atmospheric Conditions Сору То Composite X × X ð X X 13 Grab J S 1 (J-4 P n Matrix Type 9-17-17 Lab Certification ID: SC - 24110, NC - 25, NELAP - E87633, NY - 11996, TN - 2923, VA - 934 φ D Number of Containers 816 E. Durst Avenue, Greenwood, SC 29649 Date ENTER NUMBER OF SAMPLE CONTAINERS Email: Laboratory@davisfloyd.com W WW S W 3x40 G Circle: C or F W S N D VOC's Sample Chamber Temp. at Harvest TFE 0730 Time 500 P > SO4, Alkalinity Time Reporting Requirements: [] Standard [] Data Package (Specify Level: 1 2 3 4) 125 P m Sulfide Ending Beginning Relinquished By =low Measurement (Note 1) Received in Laboratory By **™**NO3/NO2 125 P <u>0</u> 3x40 G W W 1,4-Dioxane TFE Ŋ (864) 229-4413 Fax: (864) 229-7119 Internet: www.davisfloyd.com 21.61.0 Date Note:Indicate immediate delivery for those shipments in which the temperature does not have adequate time to reach 4°C. . 0730 Time Shipped Via On Ice: Cooler ID (if awaitable Tracking Number Indicate any known or expected Receipt Information UPS FEDEX CLIENT COURIER hazards with a "X" PO / Quote Number Laboratory Work Request Special Instructions Yes No Comments Office Use Only Temp(C)_ Fraction 16 PA 0 % F) 0 40 03 0 2 State 12091201 70 0

Matrix Type Definitions 1 - Drinking Water 2 - Clean Water 5 - Groundwater 7 - Soil/Sediment 8 - Liquid Sludge 9 - (P) Presentative Definitions A - None 8 - H2SO4 C - HCl D - HNO3 E - Zn Acetate, NaOH F - Filtered G - Na2S2O3 9 - Oil 12 - Air

(Note 1) For Discharge Measurements

Multiplier Start Date

Intact / Broken / Nome Davis & Floyd, Inc. FL02_03 (04/10)

Custody Seal:

Immediate Delivery: Yes

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October 08, 2012

BRYON DAHLGREN AECOM 1455 OLD ALABAMA RD. **SUITE 170** ROSWELL, GA 30076

Report ID: AK2147

Page 1 of 53

Login Number

:L12092001

Project Number

:61576.08

Description

:AURIGA - SPARTANBURG, SC

Dear Bryon Dahlgren:

We are pleased to provide the enclosed analytical results for the samples received by Davis & Floyd, Inc. on September 20, 2012.

A formal Quality Assurance/Quality Control program is maintained by Davis & Floyd, which is designed to meet or exceed the ISO/IEC 17025, EPA, NELAP or other appropriate regulatory requirements. All analytical analyses for this project met QA/QC criteria and the results are within the 99% confidence interval for each method unless otherwise stated in the footnotes. This report is to be reproduced only in full.

Feel free to contact our Client Services Representative at (864) 229-4413 if further explanation of the analysis is required. Unless other arrangements have been made, samples will be disposed of or returned 14 days from the date of the report. We appreciate the opportunity to provide services to your firm.

Sincerely, DAVIS & FLOYD, INC.

John H. McCord, Jr. Laboratory Manager

This report conatins TOTAL of _______ pages, including attachments.

Initials



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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Certificate of Analysis Report

Sample ID	Client ID	Date Collected	Date Received	
L12092001-01	D12-8-50	09/17/2012 1140	09/20/2012	
L12092001-01	D12-26-60	09/17/2012 1440	09/20/2012	
L12092001-03	D12-26-60A	09/17/2012 1440	09/20/2012	
L12092001-04	D12-25-57.5	09/17/2012 1700	09/20/2012	
L12092001-05	D12-24-54	09/19/2012 1025	09/20/2012	
L12092001-06	D12-23-69	09/19/2012 1340	09/20/2012	
L12092001-07	TRIP BLANK	09/03/2012 0730	09/20/2012	

This data report has been prepared and reviewed in accordance with standard operating procedures. Test results relate only to the sample tested.

Please direct any questions to your Project Manager.

Reviewed by



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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Certificate of Analysis

Client ID: **D12-8-50**Sample ID: L12092001-01

Date Collected: 09/17/2012 1140

Date Received : 09/20/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 09/21/2012 1424 Analyst: P.	AP/JVB	Dilution: 1		
1,1,1-TRICHLOROETHANE	<	5.00 U	5.00 ບ	g/l
1,1,2,2-TETRACHLOROETHANE	<	5.00 U	5.00 u	g/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U		g/1
1,1,2-TRICHLOROETHANE	<	5.00 U	5.00 u	g/l
1,1-DICHLOROETHANE	<	5.00 U		g/l
1,1-DICHLOROETHENE	<	5.00 U		g/l
1,2,3-TRICHLOROBENZENE	<	5.00 U	5.00 น	g/l
1,2,4-TRICHLOROBENZENE	<	5.00 U	5.00 u	.g/1
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00 น	g/1
1,2-DIBROMOETHANE	<	5.00 U	5.00 ນ	ıg/l
1,2-DICHLOROBENZENE	<	5.00 U	5.00 ບ	ıg/l
1,2-DICHLOROETHANE	<	5,00 U	5.00 ບ	ıg/l
1,2-DICHLOROPROPANE	<	5.00 U	5.00 u	ıg/l
1,3-DICHLOROBENZENE	<	5.00 U	5.00 ບ	ıg/l
1,4-DICHLOROBENZENE	<	5.00 U	5.00 u	ıg/l
2-BUTANONE	<	10.0 U	10.0 u	ıg/l
2-HEXANONE	<	10.0 U	10.0 u	ıg/l
4-METHYL-2-PENTANONE	<	5.00 U	5.00 ı	ıg/1
ACETONE	<	10.0 U	10.0 u	ıg/l
BENZENE	<	5.00 U	5.00 t	ıg/l
BROMODICHLOROMETHANE	<	5.00 U	5.00 ı	ıg/1
BROMOFORM	<	5.00 U	5.00 u	ıg/l
BROMOMETHANE	<	10.0 U	10.0 u	ıg/1
CARBON DISULFIDE	<	5.00 U	5.00 u	1g/l
CARBON TETRACHLORIDE	<	5.00 U		1g/l
CHLOROBENZENE	<	5,00 U		1g/l
CHLOROETHANE	<	10.0 U		1g/l
CHLOROFORM		15.6	5.00	1g/l
CHLOROMETHANE	<	10.0 U	10.0	1g/l
CIS-1,2-DICHLOROETHENE		17.4		ug/1
CIS-1,3-DICHLOROPROPENE	<	5.00 U		ug/l
CYCLOHEXANE	<	5.00 U		.ig/1
DIBROMOCHLOROMETHANE	<	5.00 U		ug/1
DICHLORODIFLUOROMETHANE	<	5.00 U	5.00	ug/l



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Project Number: 61576.08

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Certificate of Analysis

Client ID: D12-8-50 Sample ID: L12092001-01 Date Collected: 09/17/2012 1140 Date Received : 09/20/2012

Parameter		Result	Qua1	RDL	Units
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		105	음	(74-140)	
Surr: BROMOFLUOROBENZENE		102	ક	(77-133)	
Surr: TOLUENE-D8		101	%	(77-131)	
Chemistry					
353.2					
te/Time: 09/27/2012 1633 Analys	t: LES		Dilution:	0,0400	mg/l

NITRATE	+ NITRITE NITROGEN	(AS N)		2.00	0.0400	mg/l	
SM 2320B							
Date/Time:	09/26/2012 1500	Analyst: (CDC	Dilution:	1		*************
ALKALINI	ITY, TOTAL			33.2	1.00	mg/l	
ENDPOINT				4.49		su	
SM 4500-S2-D							
Date/Time:	09/24/2012 1108	Analyst:	CDC	Dilution:	1		
SULFIDE,	, TOTAL		<	0.0500 U	0.0500	mg/l	
SW846 9056A							
Date/Time:	09/26/2012 2222	Analyst:	CDC	Dilution:	1		
SULFATE	kanan eran an melupung dipunan dipunung pengunung menang bahan pengunung beranda dan dipunung menang beranda b	\$\$\.\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	<	1.00 U	1.00	mg/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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Certificate of Analysis

Client ID: **D12-26-60**Sample ID: L12092001-02

Date Collected: 09/17/2012 1440

Date Received : 09/20/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 09/20/2012 1710 Analyst: P.	AP/JVB	I	ilution	n: 1	***************************************	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5,00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5,00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5.00	Ū	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
CYCLOHEXANE	<	5.00	Ū	5.00	ug/l	
DIBROMOCHLOROMETHANE	<	5.00	Ü	5.00	ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	



SULFIDE, TOTAL

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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Certificate of Analysis

Client ID: **D12-26-60**Sample ID: L12092001-02

Date Collected: 09/17/2012 1440
Date Received: 09/20/2012

0.0500

mg/1

Parameter		Result	Qua1	RDL	Units	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		102	용	(74-140)		
Surr: BROMOFLUOROBENZENE		101	용	(77-133)		
Surr: TOLUENE-D8		102	용	(77-131)		
Date/Time: 09/20/2012 2118 A	nalyst: PAP/JVB		Dilutio	n: 2	***************************************	
CHLOROFORM		285		10.0	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		107	용	(74-140)		
Surr: BROMOFLUOROBENZENE		100	상	(77-133)		
Surr: TOLUENE-D8		101	ફ	(77-131)		
et Chemistry						
PA 353.2						
Date/Time: 09/27/2012 1635 A	Analyst: LES		Dilutio			
NITRATE + NITRITE NITROGEN (A		1.33		0,0400	mg/l	
м 2320В						
Date/Time: 09/26/2012 1534 A	Analyst: CDC		Dilutio	***************************************		
ALKALINITY, TOTAL		37.7		1.00	mg/l	
ENDPOINT PH		4.49			su	
M 4500-S2-D						
Date/Time: 09/24/2012 1109	Analyst: CDC		Dilutio	on: 1	*******************************	*******

0.0500



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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Certificate of Analysis

Client ID: **D12-26-60**

Sample ID: L12092001-02

Date Collected: 09/17/2012 1440

Date Received : 09/20/2012

RDL

Result Qua1 Parameter

SW846 9056A

Date/Time: 09/26/2012 2253 Analyst: CDC Dilution: 1

Units

mg/1SULFATE



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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Certificate of Analysis

Client ID: D12-26-60A Sample ID: L12092001-03 Date Collected: 09/17/2012 1440 Date Received : 09/20/2012

Units Result RDLParameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

/Time: 09/20/2012 1900 Analyst: P	AP/JVB	D	ilution:	***************************************
,1,1-TRICHLOROETHANE	<	5.00	U	5.00 ug/l
,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00 ug/l
,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0 ug/l
,1,2-TRICHLOROETHANE	<	5.00	U	5.00 ug/l
	<	5.00	U	5.00 ug/l
,1-DICHLOROETHENE	<	5.00	U	5.00 ug/1
,2,3-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l
, 2, 4-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l
, 2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00 ug/l
, 2-DIBROMOETHANE	<	5.00	U	5.00 ug/l
,2-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
,2-DICHLOROETHANE	<	5.00	U	5.00 ug/l
, 2-DICHLOROPROPANE	<	5.00	U	5.00 ug/l
,3-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
,4-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
-BUTANONE	<	10.0	U	10.0 ug/l
-HEXANONE	<	10.0	U	10.0 ug/l
METHYL-2-PENTANONE	<	5.00	U	5.00 ug/l
CETONE	<	10.0	U	10.0 ug/l
PENZENE	<	5.00	U	5.00 ug/l
ROMODICHLOROMETHANE	<	5,00	U	5.00 ug/l
ROMOFORM	<	5.00	U	5.00 ug/l
ROMOMETHANE	<	10.0	U	10.0 ug/l
CARBON DISULFIDE	<	5.00	U	5.00 ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00 ug/l
CHLOROBENZENE	<	5.00	U	5.00 ug/l
CHLOROETHANE	<	10.0	U	10.0 ug/l
CHLOROMETHANE	<	10.0	U	10.0 ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00 ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00 ug/l
CYCLOHEXANE	<	5.00	U	5.00 ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00 ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00 ug/l
	<	5.00	U	5.00 ug/l



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Certificate of Analysis

Client ID: D12-26-60A Sample ID: L12092001-03 Date Collected: 09/17/2012 1440

Date Received : 09/20/2012

Parameter		Result	Qual	RDL	Units
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5,00	U	5.00	ug/l
TRANS-1, 2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		108	용	(74-140)	
Surr: BROMOFLUOROBENZENE		103	ે	(77-133)	
Surr: TOLUENE-D8		104	승	(77-131)	
Date/Time: 09/21/2012 1451 Ana	lyst: PAP/JVB		Dilution:		
CHLOROFORM		270		10.0	ug/l
Surr: 1,2-DICHLOROETHANE-D4		108	암	(74-140)	
Surr: BROMOFLUOROBENZENE		104	ક	(77-133)	
Surr: TOLUENE-D8		103	왕	(77-131)	
et Chemistry					
PA 353.2			-14 .1		
	lyst: LES		Dilution:		/1
NITRATE + NITRITE NITROGEN (AS	N)	1.37		0.0400	mg/l
M 2320B				_	
Date/Time: 09/26/2012 1542 Ana	lyst: CDC		Dilution:		
ALKALINITY, TOTAL		34.7		1.00	mg/l
ENDPOINT PH		4.49			su
M 4500-S2-D			Dilution:	_	



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SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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Certificate of Analysis

Client ID: D12-26-60A Sample ID: L12092001-03 Date Collected: 09/17/2012 1440

Date Received : 09/20/2012

Units Qual Result Parameter

SW846 9056A

SULFATE

Dilution: 1 Analyst: CDC Date/Time: 09/26/2012 2323 mg/l 1.00 U 1.00

Davis & Floyd, Inc. | PO Drawer 428 | Greenwood, SC 29648 | 816 E. Durst Avenue | Greenwood, SC 29649 | (864) 229-4413 | Fax (864) 229-7119



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Client : AECOM

1455 OLD ALABAMA RD.

Project Number: 61576.08

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 08, 2012 Page 11 of 53 Report ID: AK2147

Certificate of Analysis

Client ID: D12-25-57.5 Sample ID: L12092001-04 Date Collected: 09/17/2012 1700

Date Received : 09/20/2012

Units Result Qua1 Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

e/Time: 09/20/2012 1928 Analyst: F	AP/JVB		ilution	: 1	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE		6.44		5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	Ū	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	Ū	10.0	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l
		5.00	U	5.00	ug/l



SULFIDE, TOTAL

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

Page 12 of 53 Report ID: AK2147

Certificate of Analysis

Client ID: **D12-25-57.5**Sample ID: L12092001-04

Date Collected: 09/17/2012 1700
Date Received: 09/20/2012

0.0500

Parameter			Result	Qua1	RDL	Units
ISOPROPYL BENZENE		<	5.00	U	5.00	ug/l
METHYL ACETATE		<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER		<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE		<	5,00	U	5.00	ug/l
METHYLENE CHLORIDE		<	5.00	U	5.00	ug/l
STYRENE		<	5.00	U	5.00	ug/l
TETRACHLOROETHENE		<	5.00	U	5.00	ug/l
TOLUENE		<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE		<	5,00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE		<	5.00	U	5.00	ug/l
TRICHLOROETHENE		<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE		<	5.00	U	5.00	ug/l
VINYL ACETATE		<	10.0	U	10.0	ug/l
VINYL CHLORIDE		<	10.0	U	10.0	ug/l
XYLENE (TOTAL)		<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4			109	용	(74-140)	
Surr: BROMOFLUOROBENZENE			105	용	(77-133)	
Surr: TOLUENE-D8			104	상	(77-131)	
Date/Time: 09/21/2012 1519	Analyst:	PAP/JVB		Dilution	1: 2	
CHLOROFORM			221		10.0	ug/l
Surr: 1,2-DICHLOROETHANE-D4			108	용	(74-140)	
Surr: BROMOFLUOROBENZENE			101	용	(77-133)	
Surr: TOLUENE-D8			101	용	(77-131)	
et Chemistry						
PA 353.2						
Date/Time: 09/27/2012 1645	Analyst:	LES		Dilution		
NITRATE + NITRITE NITROGEN	(AS N)		1.03		0.0400	mg/l
M 2320B						
Date/Time: 09/26/2012 1548	Analyst:	CDC		Dilutio		
ALKALINITY, TOTAL			46.2		1.00	mg/l
ENDPOINT PH			4.47			su
SM 4500-S2-D						
Date/Time: 09/24/2012 1111	Analyst:	CDC		Dilutio	n: 1	

0.0500 U



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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Certificate of Analysis

Client ID: D12-25-57.5 Sample ID: L12092001-04 Date Collected: 09/17/2012 1700

Date Received : 09/20/2012

RDL Units Result Qual Parameter

SW846 9056A

Dilution: 1 Analyst: CDC Date/Time: 09/26/2012 2354 mg/l

1.00 SULFATE



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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Certificate of Analysis

Client ID: **D12-24-54**Sample ID: L12092001-05

Date Collected: 09/19/2012 1025

Date Received: 09/20/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 09/20/2012 1955 Ana	lyst: PAP/JVB	D.	ilution	: 1	***************************************
1,1,1-TRICHLOROETHANE	<	5.00	ט	5.00 ug	r/1
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00 ug	r/1
1,1,2-TRICHLORO-1,2,2-TRIFLUORO	ETHANE <	10.0	U	10.0 ug	r/1
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00 ug	1/1
1,1-DICHLOROETHANE	<	5.00	U	5.00 ug	1/1
1,1-DICHLOROETHENE	<	5.00	U	5.00 ug	1/1
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00 ug	1/1
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00 ug	1/1
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00 ug	1/1
1,2-DIBROMOETHANE	<	5.00	U	5.00 ug	1/1
1,2-DICHLOROBENZENE	<	5.00	U	-	1/1
1,2-DICHLOROETHANE	<	5.00	U	5.00 ug	₃ /1
1,2-DICHLOROPROPANE	<	5.00	U	5.00 ug	₃ /1
1,3-DICHLOROBENZENE	<	5.00	U	•	g/1
1,4-DICHLOROBENZENE	<	5.00	U	•	_J /1
2-BUTANONE	<	10.0	U	10.0 ug	g/l
2-HEXANONE	<	10.0	U	•	g/1
4-METHYL-2-PENTANONE	<	5.00	U		g/l
ACETONE	<	10.0	U		₃ /1
BENZENE	<	5.00	U		g/l
BROMODICHLOROMETHANE	<	5.00	U	5.00 u	g/l
BROMOFORM	<	5.00	U	5.00 u	g/l
BROMOMETHANE	<	10.0	U	10.0 u	g/l
CARBON DISULFIDE	<	5.00	U	5.00 u	g/l
CARBON TETRACHLORIDE	<	5.00	U	5.00 u	g/l
CHLOROBENZENE	<	5.00	U		3/1
CHLOROETHANE	<	10.0	U		g/l
CHLOROMETHANE	<	10.0	U	10.0 u	g/l
CIS-1,2-DICHLOROETHENE	<	5.00	U		g/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U		g/1
CYCLOHEXANE	<	5.00	U		g/l
DIBROMOCHLOROMETHANE	<	5.00	U		g/l
DICHLORODIFLUOROMETHANE	<	5,00	U		g/l
ETHYLBENZENE	<	5.00	U	5.00 u	g/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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Certificate of Analysis

Client ID: D12-24-54 Sample ID: L12092001-05 Date Collected: 09/19/2012 1025 Date Received : 09/20/2012

Parameter		Result	Qua1	RDL	Units
				5.00	ug/l
ISOPROPYL BENZENE	<	5.00	Ü		ug/l
METHYL ACETATE	<	10.0	U	10.0	3,
METHYL-TERT-BUTYL ETHER	<	5,00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		107	응	(74-140)	
Surr: BROMOFLUOROBENZENE		99	용	(77-133)	
Surr: TOLUENE-D8		100	용	(77-131)	
ate/Time: 09/21/2012 1547 Analys	t: PAP/JVB		Dilution	1: 40	
CHLOROFORM		4150		200	ug/l
Surr: 1,2-DICHLOROETHANE-D4		105	용	(74-140)	
Sur: BROMOFLUOROBENZENE		100	용	(77- 1 33)	
Surr: TOLUENE-D8		100	용	(77-131)	
Dail, Tolomie Do					
Chemistry					
353.2			_ (2		
ate/Time: 09/27/2012 1648 Analys	t: LES		Dilution	0.0400	mg / 1

Date/Time: 09/27/2012 1648	Analyst: LES	Dilucion: 2		***************************************
NITRATE + NITRITE NITROGEN	(AS N)	2.24	0.0400	mg/l
SM 2320B				
Date/Time: 09/26/2012 1556	Analyst: CDC	Dilution: 1		
ALKALINITY, TOTAL		30.2	1.00	mg/l
ENDPOINT PH		4.48		ธน
SM 4500-S2-D				
Date/Time: 09/24/2012 1112	Analyst: CDC	Dilution: 1		
SULFIDE, TOTAL	<	០.0500 ប	0.0500	mg/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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Certificate of Analysis

Client ID: **D12-24-54**

Sample ID: L12092001-05

Date Collected: 09/19/2012 1025

Date Received : 09/20/2012

Parameter Result Qual RDL Units

SW846 9056A

SULFATE < 1.00 U 1.00 mg



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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Certificate of Analysis

Client ID: **D12-23-69**Sample ID: L12092001-06

Date Collected: 09/19/2012 1340

Date Received : 09/20/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 09/20/2012 2023 Analyst: P.	AP/JVB	Dilution: 1		
1,1,1-TRICHLOROETHANE	<	5.00 U	5.00 ug/	L
1,1,2,2-TETRACHLOROETHANE	<	5.00 U	5.00 ug/	l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U	10.0 ug/	L
1,1,2-TRICHLOROETHANE	<	5,00 U	5.00 ug/	l
1,1-DICHLOROETHANE	<	5.00 U	5.00 ug/	
1,1-DICHLOROETHENE	<	5.00 U	5.00 ug/	
1,2,3-TRICHLOROBENZENE	<	5.00 U	5.00 ug/	
1,2,4-TRICHLOROBENZENE	<	5.00 U	5.00 ug/	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5,00 ug/	
1,2-DIBROMOETHANE	<	5.00 U	5.00 ug/	
1,2-DICHLOROBENZENE	<	5.00 U	5.00 ug/	
1,2-DICHLOROETHANE	<	5.00 U	5.00 ug/	1
1,2-DICHLOROPROPANE	<	5.00 U	5.00 ug/	
1,3-DICHLOROBENZENE	<	5.00 U	5.00 ug/	
1,4-DICHLOROBENZENE	<	5.00 U	5.00 ug/	
2-BUTANONE	<	10.0 U	10.0 ug/	
2-HEXANONE	<	10.0 U	10.0 ug/	
4-METHYL-2-PENTANONE	<	5.00 U	5.00 ug/	
ACETONE		26.3	10.0 ug/	
BENZENE	<	5.00 U	5.00 ug/	
BROMODICHLOROMETHANE	<	5.00 U	5.00 ug/	
BROMOFORM	<	5.00 U	5.00 ug/	
BROMOMETHANE	<	10.0 U	10.0 ug/	
CARBON DISULFIDE	<	5.00 U	5.00 ug/	
CARBON TETRACHLORIDE	<	5.00 U	5.00 ug/	
CHLOROBENZENE	<	5.00 U	5.00 ug/	
CHLOROETHANE	<	10.0 U	10.0 ug/	
CHLOROFORM	<	5.00 U	5.00 ug/	
CHLOROMETHANE	<	10.0 U	10.0 ug/	
CIS-1,2-DICHLOROETHENE	<	5.00 U	5.00 ug/	
CIS-1,3-DICHLOROPROPENE	<	5.00 U	5.00 ug/	
CYCLOHEXANE	<	5.00 U	5.00 ug/	
DIBROMOCHLOROMETHANE	<	5.00 U	5.00 ug/	
DICHLORODIFLUOROMETHANE	<	5.00 U	5.00 ug/	1



LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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Certificate of Analysis

Client ID: D12-23-69 Sample ID: L12092001-06 Date Collected: 09/19/2012 1340

Date Received : 09/20/2012

Parameter			Result	Qual	RDL	Units	
						42	
ETHYLBENZENE		<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE		<	5.00	U	5.00	ug/l	
METHYL ACETATE		<	10.0	Ū	10.0	ug/l	
METHYL-TERT-BUTYL ETHER		<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE		<	5.00	ū	5.00	ug/l	
METHYLENE CHLORIDE		<	5.00	U	5.00	ug/l	
STYRENE		<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE		<	5.00	U	5.00	ug/l	
TOLUENE		<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE		<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE		<	5.00	U	5.00	ug/l	
TRICHLOROETHENE		<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE		<	5.00	U	5.00	ug/l	
VINYL ACETATE		<	10.0	U	10.0	ug/l	
VINYL CHLORIDE		<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)		<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4			100	용	(74-140)		
Surr: BROMOFLUOROBENZENE			95	용	(77-133)		
Surr: TOLUENE-D8			95	ક	(77-131)		
et Chemistry							
PA 353.2							
Date/Time: 09/27/2012 1650	Analyst:	LES		Dilution			***********
NITRATE + NITRITE NITROGEN	(AS N)		1.75		0.0400	mg/l	
1 2320B							
Date/Time: 09/26/2012 1605	Analyst:	CDC		Dilution	n: 1		***************************************
ALKALINITY, TOTAL			57.3		2.00	mg/l	
ENDPOINT PH			4.49			su	
M 4500-S2-D							
	Analyst:	CDC		Dilution	n: 1		
SULFIDE, TOTAL		<	0.0500	U	0.0500	mg/l	
W846 9056A							
Date/Time: 09/27/2012 0156	Analyst:	CDC		Dilutio	n: 1		
SULFATE		<	1.00	U	1.00	mg/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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Certificate of Analysis

Client ID: TRIP BLANK Sample ID: L12092001-07 Date Collected: 09/03/2012 0730

Units

Date Received : 09/20/2012

Result Qual Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

te/Time: 09/20/2012 1805	Analyst: PAP/JVB	D	ilution	: 1	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLU	OROETHANE <	10.0	U	10.0 ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00 ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00 ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00 ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
2-BUTANONE	<	10.0	U	10.0 ug/l	
2-HEXANONE	<	10.0	U	10.0 ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00 ug/l	
ACETONE	<	10.0	U	10.0 ug/l	
BENZENE	<	5.00	U	5.00 ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5,00 ug/l	
BROMOFORM	<	5.00	U	5.00 ug/l	
BROMOMETHANE	<	10.0	U	10.0 ug/l	
CARBON DISULFIDE	<	5.00	U	5.00 ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00 ug/l	
CHLOROBENZENE	<	5.00	U	5.00 ug/l	
CHLOROETHANE	<	10.0	U	10.0 ug/l	
CHLOROFORM	<	5.00	U	5.00 ug/l	
CHLOROMETHANE	<	10.0	U	10.0 ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00 ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00 ug/l	
CYCLOHEXANE	<	5.00	Ū	5.00 ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5.00 ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00 ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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Certificate of Analysis

Client ID: TRIP BLANK
Sample ID: L12092001-07

Date Collected: 09/03/2012 0730
Date Received : 09/20/2012

Parameter		Result	Qual	RDL	Units
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1, 2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	Ü	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5,00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		99	용	(74-140)	
Surr: BROMOFLUOROBENZENE		95	용	(77-133)	
		96		(77-131)	
Surr: TOLUENE-D8		, , ,	-	*	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012
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QC Summary Data



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012
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QC Batch Report - Batch Sample List

WorkGroup : WG63240
Description: VO/8260/TCL

Matrix : GW/C

: GW/ChemW

Prep Method

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
	D12-8-50	1		09/21/2012 1424	PAP/JVB	1
L12092001-01	D12-26-60	1		09/20/2012 2118	PAP/JVB	2
L12092001-02	D12-26-60	2		09/20/2012 1710	PAP/JVB	1
L12092001-02		1		09/20/2012 1900	PAP/JVB	1
L12092001-03	D12-26-60A	2		09/21/2012 1451	PAP/JVB	2
L12092001-03	D12-26-60A	1		09/20/2012 1928	PAP/JVB	1
L12092001-04	D12-25-57.5	2		09/21/2012 1519	PAP/JVB	2
L12092001-04	D12-25-57.5	1		09/20/2012 1955	PAP/JVB	1
L12092001-05	D12-24-54	2		09/21/2012 1547	PAP/JVB	40
L12092001-05	D12-24-54	1		09/20/2012 2023	PAP/JVB	1
L12092001-06	D12-23-69	1		09/20/2012 1805	PAP/JVB	1
L12092001-07	TRIP BLANK	1		09/20/2012 1643	PAP/JVB	1
MB63240:1	Method Blank	1		09/21/2012 1356	PAP/JVB	1
MB63240:2	Method Blank	1		09/20/2012 2241	PAP/JVB	1
LCS63240:1	Laboratory Control Spike	1		09/21/2012 1614	PAP/JVB	1
LCS63240:2	Laboratory Control Spike			09/20/2012 2146	PAP/JVB	2
MS12092001-02:63240	Matrix Spike	1		09/20/2012 2140	PAP/JVB	2
MSD12092001-02:63240	Matrix Spike Duplicate	1		03/20/2012 2213	1111/011	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

Page 23 of 53 Report ID: AK2147

QC Batch Report - Surrogates % Recovery

WorkGroup: WG63240

Mobasia

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DCA	BFB	TOL
		74-140	77-133	77-131
L12092001-01	09/21/2012 1424	105	102	101
L12092001-02	09/20/2012 2118	107	100	101
L12092001-02	09/20/2012 1710	102	101	102
L12092001-03	09/20/2012 1900	108	103	104
L12092001~03	09/21/2012 1451	108	104	103
L12092001-04	09/20/2012 1928	109	105	104
L12092001-04	09/21/2012 1519	108	101	101
L12092001-05	09/20/2012 1955	107	99	100
L12092001-05	09/21/2012 1547	105	100	100
L12092001-06	09/20/2012 2023	100	95	95
L12092001-07	09/20/2012 1805	99	95	96
MB63240:1	09/20/2012 1643	102	102	102
MB63240:2	09/21/2012 1356	102	100	98
LCS63240:1	09/20/2012 2241	98	97	96
LCS63240:2	09/21/2012 1614	105	103	102
MS12092001-02:63240	09/20/2012 2146	103	103	103
MSD12092001-02:63240	09/20/2012 2213	99	100	99

DCA - 1,2-DICHLOROETHANE-D4

BFB - BROMOFLUOROBENZENE

TOL - TOLUENE-D8



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

Page 24 of 53 Report ID: AK2147

QC Batch Report - Method Blanks

WorkGroup: WG63240
Blank : MB63240:1

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 09/20/2012 1643 Analys	t: PAP/JVB	Dilutio	on: 1		***************************************
1,1,1-TRICHLOROETHANE	<	5.00 U	5.00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00 U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETH	ANE <	10.0 U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5,00 U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00 U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5,00 U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00	ug/l	
1.2-DIBROMOETHANE	<	5.00 U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00 U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00 U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00 U	5,00	ug/l	
1,3-DICHLOROBENZENE	<	5.00 U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00 U	5.00	ug/l	
2-BUTANONE	<	10.0 U	10.0	ug/l	
2-HEXANONE	<	10.0 U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00 Ŭ	5.00	ug/l	
ACETONE	<	10.0 U	10.0	ug/l	
BENZENE	<	5,00 U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00 U	5.00	ug/l	
BROMOFORM	<	5.00 U	5.00	ug/l	
BROMOMETHANE	<	10.0 U	10.0	ug/l	
CARBON DISULFIDE	<	5.00 U	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00 U	5.00	ug/l	
CHLOROBENZENE	<	5.00 U	5.00	ug/l	
CHLOROETHANE	<	10.0 U	10.0	ug/l	
CHLOROFORM	<	5.00 U	5.00	ug/l	
CHLOROMETHANE	<	10.0 U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00 U	5.00	ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63240 Blank : MB63240:1

Parameter		Result	Qual	RDL	Units	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
CYCLOHEXANE	<	5.00	U	5.00	ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5,00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		102	용	(74-140)		
Surr: BROMOFLUOROBENZENE		102	용	(77-133)		
Surr: TOLUENE-D8		102	용	(77-131)		



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 08, 2012 Page 26 of 53 Report ID: AK2147

QC Batch Report - Method Blanks

WorkGroup: WG63240 Blank : MB63240:2

Result Units Qual Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 09/21/2012 1356	Analyst: PAP/JVB	D	ilution	: 1		
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2,2-TETRACHLOROETHAN	€ <	5.00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TR	IFLUOROETHANE <	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROP	ANE <	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5,00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5.00	U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5,00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM	<	5,00	U	5.00	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63240 Blank : MB63240:2

rameter Result Qual RDL	Units
S-1,3-DICHLOROPROPENE < 5.00 U 5.00	ug/l
	ug/l
THYLCYCLOHEXANE < 5.00 U 5.00	ug/l
THYLENE CHLORIDE < 5.00 U 5.00	ug/l
YRENE < 5.00 U 5.00	ug/l
TRACHLOROETHENE < 5.00 U 5.00	ug/l
OLUENE < 5.00 U 5.00	ug/l
RANS-1,2-DICHLOROETHENE < 5.00 U 5.00	ug/l
RANS-1,3-DICHLOROPROPENE < 5.00 U 5.00	ug/l
RICHLOROETHENE < 5.00 U 5.00	ug/l
RICHLOROFLUOROMETHANE < 5.00 U 5.00	ug/l
INYL ACETATE < 10.0 U 10.0	ug/l
INYL CHLORIDE < 10.0 U 10.0	ug/l
(LENE (TOTAL) < 5.00 U 5.00	ug/l
rr: 1,2-DICHLOROETHANE-D4 102 % (74-140)	
ırr: BROMOFLUOROBENZENE 100 % (77-133)	
ırr: TOLUENE-D8 98 % (77-131)	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63240

MS/MSD : MS12092001-02:63240

MSD12092001-02:63240

Matrix

: GW/ChemW

Prep Method

	500000000000000000000000000000000000000				MS	Limits
	Spike	Sample	MS	Units	ms %rec	%REC
Parameter	Added	Conc	Conc	uq/l	106	75-121
1,1,1-TRICHLOROETHANE	100.0	< 10.00	105.7	-	100	78-114
1,1,2,2-TETRACHLOROETHANE	100.0	< 10.00	102.4	ug/l	110	64-130
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	100.0	< 20.00	110.2	ug/1		78-113
1,1,2-TRICHLOROETHANE	100.0	< 10.00	103.7	ug/1	104 104	76-113
1,1-DICHLOROETHANE	100.0	< 10.00	104.1	ug/l		71-127
1,1-DICHLOROETHENE	100.0	< 10.00	112.7	ug/l	113	75-112
1,2,3-TRICHLOROBENZENE	100.0	< 10.00	104.8	ug/l	105	76-114
1,2,4-TRICHLOROBENZENE	100.0	< 10.00	102.8	ug/l	103	73-114
1,2-DIBROMO-3-CHLOROPROPANE	100.0	< 10.00	99.25	ug/1	99	
1,2-DIBROMOETHANE	100.0	< 10.00	103.5	ug/l	104	79-114
1,2-DICHLOROBENZENE	100.0	< 10.00	91.59	ug/l	92	76~109
1,2-DICHLOROETHANE	100.0	< 10.00	104.7	ug/l	105	74-122
1,2-DICHLOROPROPANE	100.0	< 10.00	104.9	ug/l	105	79-113
1,3-DICHLOROBENZENE	100.0	< 10.00	90.46	ug/l	90	69-118
1,4-DICHLOROBENZENE	100.0	< 10.00	101,1	ug/l	101	74-108
2-BUTANONE	100.0	< 20.00	109.0	ug/l	109	68-134
2-HEXANONE	100.0	< 20.00	105.6	ug/l	106	70-133
4-METHYL-2-PENTANONE	100.0	< 10.00	107.3	ug/l	107	69-135
ACETONE	100.0	< 20.00	114.8	ug/l	115	64-149
BENZENE	100.0	< 10.00	104.9	ug/l	105	77-114
BROMODICHLOROMETHANE	100.0	< 10.00	105.9	ug/l	106	76-123
BROMOFORM	100.0	< 10.00	108.9	ug/l	109	74-124
BROMOMETHANE	100.0	< 20.00	105,2	ug/l	105	64-121
CARBON DISULFIDE	100.0	< 10.00	104.6	ug/l	105	59-124
CARBON TETRACHLORIDE	100.0	< 10.00	112.3	ug/l	112	72-126
CHLOROBENZENE	100.0	< 10.00	92.06	ug/l	92	74-113
CHLOROETHANE	100.0	< 20.00	114.8	ug/l	115	71-121
CHLOROFORM	100.0	284.6	370.8	ug/l	86	76-119
CHLOROMETHANE	100.0	< 20.00	102.6	ug/l	103	59-123
CIS-1,2-DICHLOROETHENE	100.0	< 10.00	106.5	ug/l	106	74-118
CIS-1,3-DICHLOROPROPENE	100.0	< 10.00	115.1	ug/l	115	83-125
CYCLOHEXANE	100.0	< 10.00	102.1	ug/l	102	59-126
DIBROMOCHLOROMETHANE	100.0	< 10.00	106.8	ug/l	107	77-121
DICHLORODIFLUOROMETHANE	100.0	< 10.00	103.1	ug/l	103	53-141
ETHYLBENZENE	100.0	< 10,00	103.3	ug/l	103	70-130
ISOPROPYL BENZENE	100.0	< 10.00	93.48	ug/l	93	74-114
METHYL ACETATE	100.0	< 20.00	99.11	ug/l	99	68-122
METHYL-TERT-BUTYL ETHER	100.0	< 10.00	98.98	ug/l	99	74-119



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63240

MS/MSD : MS12092001-02:63240

MSD12092001-02:63240

Matrix

: GW/ChemW

Prep Method

	Spike	Sample	MS		MS	Limits
Parameter	Added	Conc	Conc	Units	%REC	%REC
METHYLCYCLOHEXANE	100.0	< 10.00	105.0	ug/l	105	61-126
METHYLENE CHLORIDE	100.0	< 10.00	102.3	ug/l	102	71-115
STYRENE	100.0	< 10.00	105.4	ug/l	105	75-116
TETRACHLOROETHENE	100.0	< 10.00	104.9	ug/l	105	69-121
TOLUENE	100.0	< 10.00	103.3	ug/l	103	74-115
TRANS-1,2-DICHLOROETHENE	100.0	< 10.00	104.6	ug/l	105	74-119
TRANS-1,3-DICHLOROPROPENE	100.0	< 10.00	102.6	ug/l	103	73-112
TRICHLOROETHENE	100.0	< 10.00	103.8	ug/l	104	74-120
TRICHLOROFLUOROMETHANE	100.0	< 10.00	115.4	ug/l	115	70-134
VINYL ACETATE	100.0	< 20.00	107.9	ug/l	108	59-146
VINYL CHLORIDE	100.0	< 20.00	104.8	ug/l	105	63-124
XYLENE (TOTAL)	300.0	< 10.00	290.1	ug/l	97	73-116

		. <u></u>		MSD		Limit	.e
	Spike	MSD Cona	Units	%rec	%RPD		- %rec
Parameter	Added	200000000000000000000000000000000000000	ug/l	106	0	16	75-121
1,1,1-TRICHLOROETHANE	100.0	106.1			3	18	78-114
1,1,2,2-TETRACHLOROETHANE	100.0	99.88	ug/l	100			64-130
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	100.0	105.4	ug/l	105	5	18	
1,1,2-TRICHLOROETHANE	100.0	103.4	ug/l	103	0	14	78-113
1,1-DICHLOROETHANE	100.0	104.2	ug/l	104	0	15	76-116
1,1-DICHLOROETHENE	100.0	109.6	ug/l	110	3	16	71-127
1,2,3-TRICHLOROBENZENE	100.0	102.8	ug/l	103	2	20	75-112
1,2,4-TRICHLOROBENZENE	100.0	102,1	ug/l	102	1	18	76-114
1,2-DIBROMO-3-CHLOROPROPANE	100.0	99.44	ug/l	99	0	20	73-124
1,2-DIBROMOETHANE	100.0	102.3	ug/l	102	1	16	79-114
1,2-DICHLOROBENZENE	100.0	90.24	ug/l	90	1	15	76-109
1,2-DICHLOROETHANE	100.0	104.7	ug/l	105	0	16	74-122
1.2-DICHLOROPROPANE	100.0	104.9	ug/l	105	0	15	79-113
1,2-DICHLOROPROPANE 1.3-DICHLOROBENZENE	100.0	90.30	ug/1	90	0	17	69-118
-,-	100.0	99.75	ug/l	100	1	16	74-108
1,4-DICHLOROBENZENE	100.0	106.6	ug/l	107	2	20	68-134
2-BUTANONE	100.0	106.3	ug/l	106	1	20	70-133
2-HEXANONE		108.1	ug/1	108	1	19	69-135
4-METHYL-2-PENTANONE	100.0		٥.	108	6	23	64-149
ACETONE	100.0	107.6	ug/1		-	15	77-114
BENZENE	100.0	103.8	ug/l	104	1		
BROMODICHLOROMETHANE	100.0	104.9	ug/l	105	1	16	76-123
BROMOFORM	100.0	106.7	ug/l	107	2	17	74-124
BROMOMETHANE	100.0	106.2	ug/l	106	1	22	64-121



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63240

MS/MSD : MS12092001-02:63240

MSD12092001-02:63240

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	MSD		MSD		Limit	;s
Parameter	Added	Conc	Units	%REC	%RPD	%RPD	%REC
CARBON DISULFIDE	100.0	107.2	ug/l	107	2	21	59-124
CARBON TETRACHLORIDE	100.0	111.3	ug/l	111	1	18	72-126
CHLOROBENZENE	100.0	91.41	ug/l	91	1	15	74-113
CHLOROETHANE	100.0	114.3	ug/l	114	0	17	71-121
CHLOROFORM	100.0	386.1	ug/l	101	4	14	76-119
CHLOROMETHANE	100.0	101.0	ug/l	101	2	18	59-123
CIS-1,2-DICHLOROETHENE	100.0	107.5	ug/l	108	1	15	74-118
CIS-1,3-DICHLOROPROPENE	100.0	114.5	ug/l	115	1	16	83-125
CYCLOHEXANE	100.0	98.83	ug/l	99	3	17	59-126
DIBROMOCHLOROMETHANE	100.0	107.5	ug/l	107	1	16	77-121
DICHLORODIFLUOROMETHANE	100.0	97.72	ug/l	98	5	20	53-141
ETHYLBENZENE	100.0	102.9	ug/l	103	0	20	70-130
ISOPROPYL BENZENE	100.0	92.25	ug/l	92	1	17	74-114
METHYL ACETATE	100.0	97.01	ug/l	97	2	19	68-122
METHYL-TERT-BUTYL ETHER	100.0	100.3	ug/l	100	1	16	74-119
METHYLCYCLOHEXANE	100.0	102.0	ug/l	102	3	16	61-126
METHYLENE CHLORIDE	100.0	103.1	ug/l	103	1	17	71-115
STYRENE	100.0	105.3	ug/l	105	0	17	75-116
TETRACHLOROETHENE	100.0	103.3	ug/l	103	2	16	69-121
TOLUENE	100.0	103.1	ug/l	103	0	15	74-115
TRANS-1,2-DICHLOROETHENE	100.0	105.1	ug/l	105	0	16	74-119
TRANS-1,3-DICHLOROPROPENE	100.0	103.4	ug/l	103	1	16	73-112
TRICHLOROETHENE	100.0	104.1	ug/l	104	0	15	74-120
TRICHLOROFLUOROMETHANE	100.0	111.3	ug/l	111	4	18	70-134
VINYL ACETATE	100.0	111.4	ug/l	111	3	19	59-146
VINYL CHLORIDE	100.0	103.9	ug/l	104	1	16	63-124
XYLENE (TOTAL)	300.0	288.7	ug/l	96	0	17	73-116

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012
Page 31 of 53 Report ID: AK2147

QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63240

LCS : LCS63240:1

Matrix

: GW/ChemW

Prep Method

	000000000000000000000000000000000000000		100000000000000000000000000000000000000	LCS	Limits
	Spike	LCS	7723 2 2	arec	%REC
Parameter	Added	Conc	Units	100	76-120
1,1,1-TRICHLOROETHANE	50.00	49.94	ug/1	95	78-116
1,1,2,2-TETRACHLOROETHANE	50.00	47.30	ug/1		65-125
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	46.38	ug/l	93	78-117
1,1,2-TRICHLOROETHANE	50.00	48.86	ug/l	98	75-117
1,1-DICHLOROETHANE	50.00	49.53	ug/l	99	72-125
1,1-DICHLOROETHENE	50.00	51.15	ug/l	102	
1,2,3-TRICHLOROBENZENE	50.00	49.93	ug/l	100	75-113
1,2,4-TRICHLOROBENZENE	50.00	49.56	ug/1	99	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	48.53	ug/l	97	77-122
1,2-DIBROMOETHANE	50.00	47.92	ug/l	96	80-116
1,2-DICHLOROBENZENE	50.00	43.34	ug/l	87	76-110
1,2-DICHLOROETHANE	50.00	49.65	ug/l	99	75-121
1,2-DICHLOROPROPANE	50.00	49.29	ug/l	99	79-115
1,3-DICHLOROBENZENE	50.00	43.32	ug/l	87	74-113
1,4-DICHLOROBENZENE	50.00	47.87	ug/l	96	74-109
2-BUTANONE	50.00	54.33	ug/l	109	72-129
2-HEXANONE	50.00	53.33	ug/1	107	73-132
4-METHYL-2-PENTANONE	50.00	53.62	ug/l	107	75-131
ACETONE	50.00	53.46	ug/l	107	70-138
BENZENE	50.00	49.26	ug/l	99	77-116
BROMODICHLOROMETHANE	50.00	50.12	ug/l	100	79-120
BROMOFORM	50.00	50.15	ug/1	100	79-121
BROMOMETHANE	50.00	50.32	ug/l	101	67-122
CARBON DISULFIDE	50.00	52.28	ug/l	105	59-125
CARBON TETRACHLORIDE	50.00	52.54	ug/l	105	74-124
CHLOROBENZENE	50.00	42.93	ug/l	86	75-113
CHLOROETHANE	50.00	52.23	ug/l	104	73-120
CHLOROFORM	50.00	49.29	ug/l	99	75-121
CHLOROMETHANE	50.00	47.98	ug/l	96	60-122
CIS-1,2-DICHLOROETHENE	50.00	50.49	ug/l	101	74-119
CIS-1,3-DICHLOROPROPENE	50.00	53,83	ug/l	108	83-126
CYCLOHEXANE	50.00	45,23	ug/l	90	60-123
DIBROMOCHLOROMETHANE	50.00	50.69	ug/1	101	779-121
DICHLORODIFLUOROMETHANE	50.00	44.08	ug/1	88	55-139
ETHYLBENZENE	50.00	48.89	ug/l	98	70-130
ISOPROPYL BENZENE	50.00	43.87	ug/l	88	74-113
METHYL ACETATE	50.00	47.33	ug/l	95	67-123
METHYL-TERT-BUTYL ETHER	50.00	47.43	ug/l	95	75-120



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

Page 32 of 53 Report ID: AK2147

QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63240 LCS

: LCS63240:1

Matrix

: GW/ChemW

Prep Method

	Spike	LCS		rca	Limits
Parameter	Added	Conc	Units	%REC	%rec
METHYLCYCLOHEXANE	50.00	46.45	ug/l	93	62-123
METHYLENE CHLORIDE	50.00	48.20	ug/l	96	70-120
STYRENE	50.00	49.36	ug/l	99	78-113
TETRACHLOROETHENE	50.00	49.01	ug/l	98	70-120
TOLUENE	50.00	48.40	ug/l	97	75-116
TRANS-1,2-DICHLOROETHENE	50.00	49.70	ug/l	99	73-121
TRANS-1,3-DICHLOROPROPENE	50.00	48.48	ug/l	97	73-114
TRICHLOROETHENE	50.00	49.18	ug/l	98	75-119
TRICHLOROFLUOROMETHANE	50.00	50.15	ug/l	100	71-128
VINYL ACETATE	50.00	54.64	ug/l	109	65-142
VINYL CHLORIDE	50.00	47.93	ug/l	96	64-122
XYLENE (TOTAL)	150.0	135.9	ug/l	91	73-116



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

Page 33 of 53 Report ID: AK2147

QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63240 : LCS63240:2 LCS

Matrix

: GW/ChemW

Prep Method

NAME Conc. Units. NAME				A5555655555555555555555	000000000000000000000000000000000000000		
1,1,1-TRICHICROETHANE							
1,1,2,7-TRICHICROSTHANE 50.00 50.05 19/1 112 78-116 1,1,2,7-TRICHICROSTHANE 50.00 50.05 19/1 101 65-125 1,1,2-TRICHICROSTHANE 50.00 53.33 19/1 107 78-117 1,1-DICHLOROSTHANE 50.00 53.22 19/1 106 75-117 1,1-DICHLOROSTHANE 50.00 58.77 19/1 110 72-125 1,2,3-TRICHICROSTHANE 50.00 58.50 19/1 107 76-114 1,2,3-TRICHICROSTHANE 50.00 58.60 19/1 107 76-114 1,2,3-TRICHICROSTHANE 50.00 58.60 19/1 107 76-114 1,2-DISHROMD-3-CHLOROSTRANE 50.00 54.05 19/1 108 80-116 1,2-DICHLOROSTRANE 50.00 54.06 19/1 108 80-116 1,2-DICHLOROSTRANE 50.00 54.06 19/1 108 80-116 1,2-DICHLOROSTRANE 50.00 54.17 19/1 108 75-121 1,2-DICHLOROSTRANE 50.00 54.17 19/1 108 75-121 1,2-DICHLOROSTRANE 50.00 54.17 19/1 108 79-115 1,2-DICHLOROSTRANE 50.00 52.65 19/1 108 79-115 1,3-DICHLOROSTRANE 50.00 52.65 19/1 108 79-115 1,3-DICHLOROSTRANE 50.00 50.74 19/1 107 74-109 2-BUTANONE 50.00 61.81 19/1 124 72-129 2-BUTANONE 50.00 57.74 19/1 118 75-131 ACTUAL ORDERIZINE 50.00 57.24 19/1 118 75-131 ACTUAL ORDERIZINE 50.00 57.77 19/1 116 79-122 CARSON DISULPIDE 50.00 52.89 19/1 106 77-116 AROMOFORM 50.00 52.89 19/1 106 77-122 CARRON DISULPIDE 50.00 57.75 19/1 118 73-121 CHLOROSTHANE 50.00 50.75 19/1 108 74-113 CHLOROSTHANE 50.00 50.75 19/1 108 74-113 CHLOROSTHANE 50.00 50.75 19/1 108 77-122 CARRON DISULPIDE 50.00 50.75 19/1 108 77-122 CARRON DISULPIDE 50.00 50.75 19/1 108 77-122 CARRON DISULPIDE 50.00 50.75 19/1 108 77-122	Parameter			4	Mark Committee of the C	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
1,1,2-TRICHIOROFITAME 50.00 50.55 ug/1 101 65-125 1,1,2-TRICHIOROFITAME 50.00 53.33 ug/1 107 78-117 1,1-DICHLOROFITAME 50.00 53.32 ug/1 106 75-117 1,1-DICHLOROFITAME 50.00 54.77 ug/1 110 72-125 1,2-TRICHIOROBENZERE 50.00 58.50 ug/1 117 75-113 1,2-TRICHIOROBENZERE 50.00 53.66 ug/1 107 76-114 1,2-TRICHIOROBENZERE 50.00 53.66 ug/1 107 76-114 1,2-DIGHOMODITAME 50.00 60.02 ug/1 120 77-122 1,2-DIGHOMODITAME 50.00 54.06 ug/1 108 80-116 1,2-DICHLOROBENZERE 50.00 54.06 ug/1 108 80-116 1,2-DICHLOROBENZERE 50.00 54.17 ug/1 108 76-110 1,2-DICHLOROBENZERE 50.00 54.17 ug/1 108 75-121 1,2-DICHLOROBENZERE 50.00 54.17 ug/1 108 75-121 1,2-DICHLOROBENZERE 50.00 54.67 ug/1 108 75-121 1,2-DICHLOROBENZERE 50.00 56.65 ug/1 105 79-115 1,3-DICHLOROBENZERE 50.00 56.67 ug/1 107 74-109 1,4-DICHLOROBENZERE 50.00 61.91 ug/1 101 74-109 2-BUTANONE 50.00 61.91 ug/1 124 72-129 2-HEXANONE 50.00 61.93 ug/1 123 73-132 4-METHYL-2-PENYANONE 50.00 59.24 ug/1 118 75-131 ACETONE 50.00 54.00 ug/1 106 77-116 BENZENE 50.00 54.00 ug/1 106 77-116 BENZENE 50.00 54.00 ug/1 109 67-122 CARRON DISULFIDE 50.00 54.00 ug/1 109 67-122 CARRON DISULFIDE 50.00 55.70 ug/1 106 59-125 CARRON TETRACHLORIDE 50.00 50.75 ug/1 103 75-121 CHLOROBENZENE 50.00 50.75 ug/1 104 74-124 CHLOROBENZENE 50.00 50.75 ug/1 104 60-123 CHLOROBOTHANE 50.00 50.75 ug/1 106 75-121 CHLOROBOTHANE 50.00 50.75 ug/1 107 60-122 CHLOROBOTHANE 50.00 50.75 ug/1 107 60-122 CHLOROBOTHANE 50.00 50.75 ug/1 101 60-123 CHLOROBOTHANE 50.00 50.75 ug/1 101 60-123 CHLOROBOTHANE 50.00 50.76 ug/1 104 60-123 CHLOROBOTHANE 50.00 50.00 50.75 u	1,1,1-TRICHLOROETHANE			= -			
1,1,2-TRICHLOROFTHANE	1,1,2,2-TETRACHLOROETHANE	50.00					
1,1-DICHLORORITHANE	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	50.65	=			
1,1-DICHIOROGETHANE	1,1,2-TRICHLOROETHANE	50.00	53.33	= '.			
1, 2, 3 TRICHIOROBENZENE 50.00 58.50 ug/l 117 75-113 1, 2, 4 TRICHLOROBENZENE 50.00 53.66 ug/l 107 76-114 1, 2-DIEROMO-3-CHLOROPROPANE 50.00 60.02 ug/l 120 77-122 1, 2-DIEROMO-3-CHLOROPROPANE 50.00 54.06 ug/l 108 60-116 1, 2-DICHLOROBENZENE 50.00 46.26 ug/l 108 60-116 1, 2-DICHLOROBENZENE 50.00 54.17 ug/l 108 75-121 1, 2-DICHLOROPROPANE 50.00 54.17 ug/l 108 75-121 1, 2-DICHLOROPROPANE 50.00 52.65 ug/l 105 79-115 1, 3-DICHLOROBENZENE 50.00 50.74 ug/l 101 74-103 2-BUTANONE 50.00 50.74 ug/l 101 74-103 2-BUTANONE 50.00 61.81 ug/l 124 72-129 2-HEXANONE 50.00 61.83 ug/l 123 73-132 4-METHYL-2-PENTANONE 50.00 65.05 ug/l 130 70-138 BENZENE 50.00 65.05 ug/l 106 77-116 BROMODICHLOROMETHANE 50.00 52.85 ug/l 106 77-116 BROMODICHLOROMETHANE 50.00 52.85 ug/l 106 77-116 BROMODICHLOROMETHANE 50.00 52.85 ug/l 106 79-122 CARBON DISULFIDE 50.00 54.28 ug/l 109 67-122 CARBON DISULFIDE 50.00 55.77 ug/l 116 79-121 CARBON TETRACHLORIDE 50.00 54.28 ug/l 106 79-121 CHLOROBENZENE 50.00 55.70 ug/l 111 74-124 CHLOROPERNANE 50.00 55.70 ug/l 111 74-124 CHLOROPERNANE 50.00 56.47 ug/l 113 73-120 CHLOROPETHANE 50.00 55.70 ug/l 111 74-124 CHLOROPERNANE 50.00 56.47 ug/l 113 73-120 CHLOROPETHANE 50.00 57.77 ug/l 116 75-121 CHLOROPETHANE 50.00 57.79 ug/l 110 74-124 CHLOROPETHANE 50.00 56.47 ug/l 113 73-120 CHLOROPETHANE 50.00 56.47 ug/l 113 73-120 CHLOROPETHANE 50.00 56.47 ug/l 113 73-120 CHLOROPETHANE 50.00 56.99 ug/l 100 77-121 CHLOROPETHANE 50.00 56.99 ug/l 100 77-121 CHLOROPETHANE 50.00 56.99 ug/l 100 77-121 DICHLOROPETHANE 50.00 56.99 ug/l 100 77-121 DICHLOROPETHANE 50.00 57.76 ug/l 110 779-121 DICHLOROPETHANE 50.00 57.66 ug/l 109 77-121 DICHLOROPETHANE 50.00 57.66 ug/l 109 77-121 DICHLOROPETHANE 50.00 57.66 ug/l 109 77-121 DICHLOROPETHANE 50.00 57.66 ug/l 114 67-123 DICHLOROPETHANE 50.00 46.30 ug/l 93 75-113 SOPPOTYU BENZENE 50.00 46.30 ug/l 93 74-113 NETHYL ACETATE 50.00 57.66 ug/l 114 67-123	1,1-DICHLOROETHANE	50.00	53.22	- · · · · · · · · · · · · · · · · · · ·			
1,2,4-TRICHIOROBENERER	1,1-DICHLOROETHENE	50.00	54.77	_			
1, 2-DIBROMO-3-CHLOROPROFANE 50.00 60.02 ug/1 120 77-122 1, 2-DIBROMOSTHANE 50.00 54.06 ug/1 108 80-116 1, 2-DICHLOROBENZENE 50.00 54.06 ug/1 108 76-110 1, 2-DICHLOROBENZENE 50.00 54.17 ug/1 108 75-121 1, 2-DICHLOROPANE 50.00 52.65 ug/1 105 79-115 1, 3-DICHLOROBENZENE 50.00 52.65 ug/1 105 79-115 1, 3-DICHLOROBENZENE 50.00 50.74 ug/1 93 74-113 1, 4-DICHLOROBENZENE 50.00 61.81 ug/1 124 72-129 2-HEXANONE 50.00 61.81 ug/1 124 72-129 2-HEXANONE 50.00 61.83 ug/1 123 73-132 4-METHYL-2-PENTANONE 50.00 65.05 ug/1 118 75-131 ACETONE 50.00 65.05 ug/1 100 70-138 BENZENE 50.00 62.85 ug/1 106 77-116 BROMODICHLOROMETHANE 50.00 52.85 ug/1 106 79-120 BROMOPORM 50.00 57.77 ug/1 116 79-121 BROMOMETHANE 50.00 54.28 ug/1 109 67-122 CARBON DISULFIDE 50.00 54.28 ug/1 109 67-122 CARBON DISULFIDE 50.00 55.70 ug/1 111 74-124 CHLOROBENZENE 50.00 56.47 ug/1 111 74-124 CHLOROBENZENE 50.00 56.47 ug/1 113 73-120 CHLOROMETHANE 50.00 50.75 ug/1 106 75-121 CHLOROMETHANE 50.00 50.75 ug/1 106 75-121 CHLOROMETHANE 50.00 55.70 ug/1 111 74-124 CHLOROBENZENE 50.00 56.47 ug/1 113 73-120 CHLOROMETHANE 50.00 50.75 ug/1 100 75-121 CHLOROMETHANE 50.00 50.75 ug/1 100 779-121 DICHLOROMETHANE 50.00 50.01 100 779-121 DICHLOROMETHANE 50.00 50.31 ug/1 100 779-121 DICHLOROMETHANE 50.00 50.30 ug/1 93 74-113 METHYL ACETATE 50.00 57.00 Ug/1 114 67-123	1,2,3-TRICHLOROBENZENE	50.00	58.50	= ".			
1, 2-DIBROMO-1-A-CHIDROPHOPANE 1, 2-DICHLOROBENZENE 1, 2-DICHLOROBENZENE 1, 2-DICHLOROBENZENE 1, 2-DICHLOROBENZENE 50.00 46.26 ug/1 108 76-110 1, 2-DICHLOROPHANE 50.00 52.65 ug/1 105 79-115 1, 3-DICHLOROPENZENE 50.00 46.27 ug/1 93 74-113 1, 4-DICHLOROBENZENE 50.00 50.74 ug/1 101 74-109 2-BUTANONE 50.00 61.81 ug/1 123 73-132 4-METHYL-2-PENTANONE 50.00 61.81 ug/1 118 75-131 ACETONE 50.00 65.05 ug/1 130 70-138 BENZENE 50.00 65.05 ug/1 130 70-138 BENZENE 50.00 65.05 ug/1 106 77-116 BROMODICHLOROMETHANE 50.00 54.00 ug/1 108 79-120 BROMOFTHANE 50.00 57.77 ug/1 116 79-121 BROMOSTHANE 50.00 57.77 ug/1 116 79-121 CARBON TETRACHLORIDE 50.00 55.70 ug/1 110 74-124 CHLOROBENZENE 50.00 55.70 ug/1 111 74-124 CHLOROBENZENE 50.00 56.47 ug/1 111 74-124 CHLOROBENZENE 50.00 55.70 ug/1 111 74-124 CHLOROBENZENE 50.00 56.47 ug/1 111 74-124 CHLOROBENZENE 50.00 56.47 ug/1 111 74-124 CHLOROBENZENE 50.00 56.47 ug/1 111 74-124 CHLOROBENZENE 50.00 50.75 ug/1 110 75-113 CHLOROMETHANE 50.00 50.75 ug/1 111 74-124 CHLOROBENZENE 50.00 50.75 ug/1 111 74-124 CHLOROBENZENE 50.00 50.75 ug/1 111 74-124 CHLOROBENZENE 50.00 50.75 ug/1 110 60-122 CHS-1,2-DICHLOROPENE 50.00 50.75 ug/1 110 60-123 CHS-1,2-DICHLOROPENE 50.00 50.75 ug/1 110 60-123 CHS-1,2-DICHLOROPENE 50.00 50.30 ug/1 106 75-121 CHLOROMETHANE 50.00 50.75 ug/1 110 779-121 CHLOROMETHANE 50.00 50.75 ug/1 110 779-121 CHLOROMETHANE 50.00 50.75 ug/1 110 779-121 CHLOROMETHANE 50.00 50.31 ug/1 106 75-121 CHLOROMETHANE 50.00 50.31 ug/1 107 79-121 DICHLOROMETHANE 50.00 50.31 ug/1 107 79-121 DICHLOROMETHANE 50.00 50.30 Ug/1 93 74-113 METHYL ACETATE	1,2,4-TRICHLOROBENZENE	50.00	53.66	= '.			
1,2-DIEROMDETHANE 1,2-DICHLOROBENZENE 50.00 46.26 ug/1 108 75-121 1,2-DICHLOROBENZENE 50.00 52.65 ug/1 105 79-115 1,3-DICHLOROBENZENE 50.00 50.00 50.74 ug/1 101 74-109 2-BUTANONE 2-BUTANONE 2-BUTANONE 50.00 61.81 ug/1 124 72-129 2-HEXANONE 50.00 61.83 ug/1 118 75-131 ACETONE 50.00 65.05 ug/1 106 77-116 BROMODICHLOROBENZENE 50.00 65.05 ug/1 106 77-116 BROMODICHLOROMETHANE 50.00 50.0	1,2-DIBROMO-3-CHLOROPROPANE	50.00	60.02	_			
1,2-DICHLOROETHANE	1,2-DIBROMOETHANE	50.00	54.06	ug/l			
1,2-DICHLOROPENPANE 1,2-DICHLOROPROPANE 1,3-DICHLOROPROPANE 1,3-DICHLOROPENZENE 50.00 50.74 ug/l 101 74-109 2-BUTANONE 50.00 50.74 ug/l 101 74-109 2-BUTANONE 50.00 61.81 ug/l 123 73-132 4-METHYL-2-PENTANONE 50.00 50.00 59.24 ug/l 118 75-131 ACETONE 50.00 50.	1,2-DICHLOROBENZENE	50.00	46.26	ug/l	93		
1,3-DICHLOROBENZENE 50.00 46.27 ug/l 93 74-113 1,4-DICHLOROBENZENE 50.00 50.74 ug/l 101 74-109 2-BUTANONE 50.00 61.81 ug/l 124 72-129 2-HEXANONE 50.00 61.83 ug/l 123 73-132 4-METHYL-2-PENTANONE 50.00 65.05 ug/l 118 75-131 ACCTONE 50.00 65.05 ug/l 130 70-138 BENZENE 50.00 52.85 ug/l 106 77-116 BROMODICHLOROMETHANE 50.00 57.77 ug/l 108 79-120 BROMOFORM 50.00 57.77 ug/l 116 79-121 BROMOMETHANE 50.00 54.28 ug/l 109 67-122 CARBON DISULFIDE 50.00 55.70 ug/l 111 74-124 CHLOROBENZENE 50.00 55.70 ug/l 111 74-124 CHLOROBENZENE 50.00 56.47 ug/l 111 74-124 CHLOROBENENE 50.00 56.47 ug/l 113 73-120 CHLOROFORM 50.00 53.03 ug/l 106 75-113 CHLOROFORM 50.00 53.03 ug/l 106 75-121 CHLOROBETHANE 50.00 50.75 ug/l 102 60-122 CIS-1,2-DICHLOROFTHENE 50.00 53.98 ug/l 108 74-119 CTS-1,3-DICHLOROFTHENE 50.00 55.24 ug/l 110 779-121 DICHLOROMETHANE 50.00 55.24 ug/l 109 779-121 DICHLOROMETHANE 50.00 55.24 ug/l 100 779-121 DICHLOROMETHANE 50.00 50.31 ug/l 101 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/l 110 779-121 DICHLOROMETHANE 50.00 55.24 ug/l 100 779-121 DICHLOROMETHANE 50.00 55.26 ug/l 105 70-130 DIBROMOCHLOROMETHANE 50.00 52.68 ug/l 105 70-130 DIBROMOCHLOROMETHANE 50.00 52.68 ug/l 105 70-130 BROMOCHLOROMETHANE 50.00 52.68 ug/l 105 70-130 BROMOCHLOROMETHANE 50.00 57.06 ug/l 114 67-123 BROMOCHLOROMETHANE 50.00 57.06 ug/l 114 67-123	1,2-DICHLOROETHANE	50.00	54.17	ug/l			
1,3-DICHLOROBENZENE 1,4-DICHLOROBENZENE 50.00 50.74 ug/1 101 74-109 2-BUTANONE 50.00 61.81 ug/1 124 72-129 2-HEXANONE 50.00 61.83 ug/1 123 73-132 4-METHYL-2-PENTANONE 50.00 59.24 ug/1 118 75-131 ACETONE 50.00 65.05 ug/1 106 77-116 BENZENE 50.00 52.85 ug/1 106 77-116 BROMODICHLOROMETHANE 50.00 57.77 ug/1 116 BROMOMETHANE 50.00 57.77 ug/1 116 BROMOMETHANE 50.00 52.89 ug/1 109 67-122 CARBON DISULFIDE 50.00 52.89 ug/1 109 67-122 CARBON TETRACHLORIDE 50.00 55.70 ug/1 111 74-124 CHLOROBENZENE 50.00 55.70 ug/1 111 74-124 CHLOROBENZENE 50.00 56.47 ug/1 113 73-120 CHLOROFORM 50.00 55.70 ug/1 113 73-120 CHLOROFORM 50.00 55.70 ug/1 113 73-120 CHLOROFORM 50.00 55.70 ug/1 114 83-126 CYCLOHEXANE 50.00 50.31 ug/1 106 74-119 CIS-1,3-DICHLOROPROPENE 50.00 50.31 ug/1 110 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/1 107 779-121 DICHLOROMETHANE 50.00 55.268 ug/1 107 779-121 DICHLOROMETHANE 50.00 55.268 ug/1 107 779-121 DICHLOROMETHANE 50.00 57.06 ug/1 110 779-121 DICHLOROMETHANE 50.00 57.06 ug/1 111 74-124 110 779-121 DICHLOROMETHANE 50.00 57.06 ug/1 110 67-123	1,2-DICHLOROPROPANE	50.00	52.65	ug/l	105		
2-BUTANONE	1,3-DICHLOROBENZENE	50.00	46.27	ug/l	93		
2-BUTANONE 2-HEXANONE 50.00 61.33 ug/l 123 73-132 4-METHYL-2-PENTANONE 50.00 59.24 ug/l 118 75-131 ACETONE 50.00 65.05 ug/l 130 70-138 BENZENE 50.00 52.85 ug/l 106 77-116 BROMODICHLOROMETHANE 50.00 54.00 ug/l 108 79-120 BROMOMETHANE 50.00 54.28 ug/l 109 67-122 CARBON DISULFIDE CARBON DISULFIDE 50.00 52.89 ug/l 106 59-125 CARBON TETRACHLORIDE 50.00 55.70 ug/l 111 74-124 CHLOROMETHANE 50.00 56.47 ug/l 113 73-120 CHLOROMETHANE 50.00 56.47 ug/l 113 73-120 CHLOROMETHANE 50.00 50.00 50.01 113 73-120 CHLOROMETHANE 50.00 50.75 ug/l 100 75-121 CHLOROMETHANE 50.00 50.75 ug/l 102 60-122 CIS-1,2-DICHLOROETHENE 50.00 50.75 ug/l 102 60-122 CIS-1,3-DICHLOROPROPENE 50.00 50.75 ug/l 108 74-119 CIS-1,3-DICHLOROPROPENE 50.00 50.31 ug/l 106 79-121 DICHLOROMETHANE 50.00 50.31 ug/l 107 60-123 DIBROMOCHLOROMETHANE 50.00 50.31 ug/l 101 60-123 DIBROMOCHLOROMETHANE 50.00 50.31 ug/l 101 779-121 DICHLORODIFLUOROMETHANE 50.00 50.31 ug/l 101 779-121 DICHLORODIFLUOROMETHANE 50.00 50.31 ug/l 100 779-121 DICHLORODIFLUOROMETHANE 50.00 50.68 ug/l 105 70-130 BETHYL ACETATE 50.00 57.06 ug/l 114 67-123 METHYL ACETATE	1,4-DICHLOROBENZENE	50.00	50.74	ug/l	101		
### A-METHYL-2-PENTANONE	2-BUTANONE	50.00	61.81	ug/l	124		
ACETONE 50.00 65.05 ug/l 130 70-138 BENZENE 50.00 52.85 ug/l 106 77-116 BROMODICHLOROMETHANE 50.00 54.00 ug/l 108 79-120 BROMOFORM 50.00 57.77 ug/l 116 79-121 BROMOMETHANE 50.00 54.28 ug/l 109 67-122 CARBON DISULFIDE 50.00 52.89 ug/l 106 59-125 CARBON TETRACHLORIDE 50.00 55.70 ug/l 111 74-124 CHLOROBENZENE 50.00 46.43 ug/l 93 75-113 CHLOROFORM 50.00 53.03 ug/l 106 75-121 CHLOROFORM 50.00 53.03 ug/l 106 75-121 CHLOROMETHANE 50.00 55.75 ug/l 102 60-122 CIS-1,2-DICHLOROETHENE 50.00 53.98 ug/l 108 74-119 CIS-1,3-DICHLOROPOPENE 50.00 56.99 ug/l 114 83-126 CYCLOHEXANE 50.00 56.99 ug/l 110 60-123 DIBROMOCHLOROMETHANE 50.00 55.31 ug/l 101 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/l 110 779-121 DICHLOROMETHANE 50.00 55.24 ug/l 101 779-121 DICHLOROMETHANE 50.00 55.24 ug/l 110 779-121 DICHLOROMETHANE 50.00 55.268 ug/l 105 70-130 ETHYLBENZENE 50.00 52.68 ug/l 105 70-130 ISOPROPYL BENZENE 50.00 52.68 ug/l 114 67-123 METHYL ACETATE	2-HEXANONE	50.00	61.33	ug/l	123		
BENZENE 50.00 52.85 ug/l 106 77-116 BROMODICHLOROMETHANE 50.00 52.85 ug/l 108 79-120 BROMOFORM 50.00 57.77 ug/l 116 79-121 BROMOMETHANE 50.00 54.28 ug/l 109 67-122 CARBON DISULFIDE 50.00 52.89 ug/l 106 59-125 CARBON TETRACHLORIDE 50.00 55.70 ug/l 111 74-124 CHLOROBENZENE 50.00 46.43 ug/l 93 75-113 CHLOROFORM 50.00 56.47 ug/l 113 73-120 CHLOROFORM 50.00 53.03 ug/l 106 75-121 CHLOROMETHANE 50.00 50.75 ug/l 102 60-122 CIS-1,2-DICHLOROFENE 50.00 53.98 ug/l 108 74-119 CIS-1,3-DICHLOROFORME 50.00 55.24 ug/l 114 83-126 CYCLOHEXANE 50.00 50.31 ug/l 101 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/l 110 779-121 DICHLOROMETHANE 50.00 55.24 ug/l 107 779-121 DICHLOROMETHANE 50.00 55.24 ug/l 107 779-121 DICHLOROMETHANE 50.00 55.24 ug/l 107 779-121 DICHLOROMETHANE 50.00 52.68 ug/l 96 55-139 ETHYLBENZENE 50.00 47.94 ug/l 96 55-139 ETHYLBENZENE 50.00 57.06 ug/l 114 67-123 METHYL ACETATE 50.00 57.06 ug/l 114 67-123	4-METHYL-2-PENTANONE	50.00	59.24	ug/l	118		
BENZENE BROMODICHLOROMETHANE 50.00 51.00 52.00 57.77 ug/l 116 79-121 BROMOFORM 50.00 57.77 ug/l 1109 67-122 CARBON DISULFIDE 50.00 52.89 ug/l 106 59-125 CARBON TETRACHLORIDE 50.00 55.70 ug/l 111 74-124 CHLOROBENZENE 50.00 56.47 ug/l 113 73-120 CHLOROFORM 50.00 53.03 ug/l 106 75-121 CHLOROMETHANE 50.00 50.75 ug/l 110 60-122 CIS-1,2-DICHLOROFTHENE 50.00 50.75 ug/l 1102 60-122 CIS-1,3-DICHLOROFROPENE 50.00 50.31 ug/l 108 75-113 73-120 75-121 CHLOROMETHANE 50.00 50.75 ug/l 102 60-122 CIS-1,3-DICHLOROFROPENE 50.00 50.31 ug/l 108 74-119 CIS-1,3-DICHLOROFROPENE 50.00 50.31 ug/l 101 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/l 110 779-121 DICHLORODIFLUOROMETHANE 50.00 55.24 ug/l 110 779-121 DICHLORODIFLUOROMETHANE 50.00 52.68 ug/l 105 70-130 ISOPROPYL BENZENE 50.00 57.06 ug/l 114 67-123	ACETONE	50.00	65.05	ug/l	130		
BROMODICHLOROMETHANE BROMOFORM 50.00 57.77 ug/l 116 79-121 BROMOMETHANE 50.00 54.28 ug/l 109 67-122 CARBON DISULFIDE 50.00 52.89 ug/l 110 59-125 CARBON TETRACHLORIDE 50.00 55.70 ug/l 111 74-124 CHLOROBENZENE 50.00 56.47 ug/l 113 73-120 CHLOROFORM 50.00 53.03 ug/l 106 75-121 CHLOROFORM 50.00 53.03 ug/l 106 75-121 CHLOROMETHANE 50.00 50.75 ug/l 102 60-122 CIS-1,2-DICHLOROETHENE 50.00 53.98 ug/l 108 74-119 CIS-1,3-DICHLOROPROPENE 50.00 50.31 ug/l 101 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/l 110 779-121 DICHLOROMETHANE 50.00 55.24 ug/l 110 779-121 DICHLOROMETHANE 50.00 55.24 ug/l 110 779-121 DICHLORODIFLUOROMETHANE 50.00 52.68 ug/l 105 70-130 ISOPROPYL BENZENE 50.00 57.06 ug/l 114 67-123	BENZENE	50.00	52.85	ug/l	106	77-116	
BROMOFORM BROMOMETHANE 50.00 54.28 ug/1 109 67-122 CARBON DISULFIDE 50.00 52.89 ug/1 111 74-124 CHLOROBENZENE 50.00 56.47 ug/1 111 73-120 CHLOROFORM 50.00 53.03 ug/1 106 75-121 CHLOROMETHANE 50.00 50.75 ug/1 113 73-120 CHLOROMETHANE 50.00 50.75 ug/1 106 75-121 CHLOROMETHANE 50.00 50.75 ug/1 102 60-122 CIS-1,2-DICHLOROFTHENE 50.00 53.98 ug/1 108 74-119 CIS-1,3-DICHLOROFROPENE 50.00 50.31 ug/1 101 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/1 110 779-121 DICHLOROMETHANE 50.00 55.24 ug/1 110 779-121 DICHLOROMETHANE 50.00 52.68 ug/1 105 70-130 ISOPROPYL BENZENE 50.00 57.06 ug/1 114 67-123 AF-113	BROMODICHLOROMETHANE	50.00	54.00	ug/l	108	79-120	
CARBON DISULFIDE 50.00 52.89 ug/l 106 59-125 CARBON TETRACHLORIDE 50.00 55.70 ug/l 111 74-124 CHLOROBENZENE 50.00 46.43 ug/l 93 75-113 CHLOROFORM 50.00 56.47 ug/l 113 73-120 CHLOROFORM 50.00 53.03 ug/l 106 75-121 CHLOROMETHANE 50.00 50.75 ug/l 102 60-122 CIS-1,2-DICHLOROETHENE 50.00 53.98 ug/l 108 74-119 CIS-1,3-DICHLOROPROPENE 50.00 56.99 ug/l 114 83-126 CYCLOHEXANE 50.00 50.31 ug/l 101 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/l 110 779-121 DICHLOROMETHANE 50.00 47.94 ug/l 96 55-139 ETHYLBENZENE 50.00 47.94 ug/l 96 55-139 ETHYLBENZENE 50.00 52.68 ug/l 105 70-130 ISOPROPYL BENZENE 50.00 57.06 ug/l 114 67-123 METHYL ACETATE	BROMOFORM	50.00	57.77	ug/l	116	79-121	
CARBON DISOLFIDE CARBON TETRACHLORIDE 50.00 55.70 ug/l 111 74-124 CHLOROBENZENE 50.00 46.43 ug/l 93 75-113 CHLOROFTHANE 50.00 56.47 ug/l 113 73-120 CHLOROFORM 50.00 53.03 ug/l 106 75-121 CHLOROMETHANE 50.00 50.75 ug/l 102 60-122 CIS-1,2-DICHLOROFTHENE 50.00 53.98 ug/l 108 74-119 CIS-1,3-DICHLOROPROPENE 50.00 56.99 ug/l 114 83-126 CYCLOHEXANE 50.00 50.31 ug/l 101 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/l 110 779-121 DICHLORODIFLUOROMETHANE 50.00 47.94 ug/l 96 55-139 ETHYLBENZENE 50.00 52.68 ug/l 105 70-130 ISOPROPYL BENZENE 50.00 46.30 ug/l 93 74-113 METHYL ACETATE	BROMOMETHANE	50.00	54.28	ug/l	109	67-122	
CARBON TETRACHLORIDE CHLOROBENZENE 50.00 46.43 ug/1 93 75-113 CHLOROFORM 50.00 56.47 ug/1 113 73-120 CHLOROFORM 50.00 53.03 ug/1 106 75-121 CHLOROMETHANE 50.00 50.75 ug/1 102 60-122 CIS-1,2-DICHLOROETHENE 50.00 53.98 ug/1 108 74-119 CIS-1,3-DICHLOROPROPENE 50.00 56.99 ug/1 114 83-126 CYCLOHEXANE 50.00 50.31 ug/1 101 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/1 110 779-121 DICHLORODIFLUOROMETHANE 50.00 47.94 ug/1 96 55-139 ETHYLBENZENE 50.00 52.68 ug/1 105 70-130 1SOPROPYL BENZENE 50.00 57.06 ug/1 114 67-123	CARBON DISULFIDE	50.00	52.89	ug/l	106	59-125	
CHLOROBENZENE 50.00 56.47 ug/l 113 73-120 CHLOROFORM 50.00 53.03 ug/l 106 75-121 CHLOROMETHANE 50.00 50.75 ug/l 102 60-122 CIS-1,2-DICHLOROETHENE 50.00 53.98 ug/l 108 74-119 CIS-1,3-DICHLOROPROPENE 50.00 56.99 ug/l 114 83-126 CYCLOHEXANE 50.00 50.31 ug/l 101 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/l 110 779-121 DICHLORODIFLUOROMETHANE 50.00 47.94 ug/l 96 55-139 ETHYLBENZENE 50.00 52.68 ug/l 105 70-130 ISOPROPYL BENZENE 50.00 57.06 ug/l 93 74-113 METHYL ACETATE 50.00 57.06 ug/l 114 67-123	CARBON TETRACHLORIDE	50.00	55.70	ug/l	111		
CHLOROETHANE CHLOROFORM 50.00 53.03 ug/l 106 75-121 CHLOROMETHANE 50.00 50.75 ug/l 102 60-122 CIS-1,2-DICHLOROETHENE 50.00 53.98 ug/l 108 74-119 CIS-1,3-DICHLOROPROPENE 50.00 56.99 ug/l 114 83-126 CYCLOHEXANE 50.00 50.31 ug/l 101 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/l 110 779-121 DICHLORODIFLUOROMETHANE 50.00 47.94 ug/l 96 55-139 ETHYLBENZENE 50.00 50.00 52.68 ug/l 105 70-130 ISOPROPYL BENZENE 50.00 57.06 ug/l 114 67-123	CHLOROBENZENE	50.00	46.43	ug/l	93	75-113	
CHLOROFORM CHLOROMETHANE 50.00 50.75 ug/1 102 60-122 CIS-1,2-DICHLOROETHENE 50.00 53.98 ug/1 108 74-119 CIS-1,3-DICHLOROPROPENE 50.00 56.99 ug/1 114 83-126 CYCLOHEXANE 50.00 50.31 ug/1 DIBROMOCHLOROMETHANE 50.00 55.24 ug/1 DICHLORODIFLUOROMETHANE 50.00 47.94 ug/1 96 55-139 ETHYLBENZENE 50.00 50.00 52.68 ug/1 105 70-130 ISOPROPYL BENZENE 50.00 57.06 ug/1 114 67-123	CHLOROETHANE	50.00	56.47	ug/l	113	73-120	
CHLOROMETHANE CIS-1,2-DICHLOROETHENE 50.00 53.98 ug/1 108 74-119 CIS-1,3-DICHLOROPROPENE 50.00 56.99 ug/1 114 83-126 CYCLOHEXANE 50.00 50.31 ug/1 101 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/1 DICHLORODIFLUOROMETHANE 50.00 47.94 ug/1 96 55-139 ETHYLBENZENE 50.00 52.68 ug/1 105 70-130 ISOPROPYL BENZENE 50.00 57.06 ug/1 114 67-123	CHLOROFORM	50.00	53.03	ug/l	106	75-121	
CIS-1,2-DICHLOROFTHENE 50.00 56.99 ug/l 114 83-126 CYCLOHEXANE 50.00 50.31 ug/l 101 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/l 110 779-121 DICHLORODIFLUOROMETHANE 50.00 47.94 ug/l 96 55-139 ETHYLBENZENE 50.00 52.68 ug/l 105 70-130 ISOPROPYL BENZENE 50.00 46.30 ug/l 93 74-113 METHYL ACETATE 50.00 57.06 ug/l 114 67-123	CHLOROMETHANE	50.00	50.75	ug/l	102	60-122	
CIS-1,3-DICHLOROPROPENE 50.00 50.31 ug/1 101 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/1 110 779-121 DICHLORODIFLUOROMETHANE 50.00 47.94 ug/1 96 55-139 ETHYLBENZENE 50.00 52.68 ug/1 105 70-130 ISOPROPYL BENZENE 50.00 46.30 ug/1 93 74-113 METHYL ACETATE 50.00 57.06 ug/1 114 67-123	CIS-1,2-DICHLOROETHENE	50.00	53.98	ug/l	108	74-119	
CYCLOHEXANE 50.00 50.31 ug/l 101 60-123 DIBROMOCHLOROMETHANE 50.00 55.24 ug/l 110 779-121 DICHLORODIFLUOROMETHANE 50.00 47.94 ug/l 96 55-139 ETHYLBENZENE 50.00 52.68 ug/l 105 70-130 ISOPROPYL BENZENE 50.00 46.30 ug/l 93 74-113 METHYL ACETATE 50.00 57.06 ug/l 114 67-123	CIS-1,3-DICHLOROPROPENE	50.00	56,99	ug/l	114	83-126	
DIBROMOCHLOROMETHANE 50.00 53.24 ug/1 96 55-139 ETHYLBENZENE 50.00 52.68 ug/1 105 70-130 ISOPROPYL BENZENE 50.00 46.30 ug/1 93 74-113 METHYL ACETATE 50.00 57.06 ug/1 114 67-123		50.00	50.31	ug/l	101	60-123	
ETHYLBENZENE 50.00 52.68 ug/l 105 70-130 ISOPROPYL BENZENE 50.00 46.30 ug/l 93 74-113 METHYL ACETATE 50.00 57.06 ug/l 114 67-123	DIBROMOCHLOROMETHANE	50,00	55.24	ug/l	110	779-121	
ISOPROPYL BENZENE 50.00 46.30 ug/l 93 74-113 METHYL ACETATE 50.00 57.06 ug/l 114 67-123	DICHLORODIFLUOROMETHANE	50.00	47.94	ug/l	96	55-139	
ISOPROPYL BENZENE 50.00 46.30 ug/l 93 74-113 METHYL ACETATE 50.00 57.06 ug/l 114 67-123	ETHYLBENZENE	50.00	52.68	ug/l	105	70-130	
METHYL ACETATE 50.00 57.06 ug/l 114 67-123		50.00	46.30	ug/l	93	74-113	
75 75 75 75 75 75 75 75 75 75 75 75 75 7		50.00	57.06	ug/l	114	67-123	
	METHYL-TERT-BUTYL ETHER	50.00	52.69	ug/l	105	75-120	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012 Page 34 of 53 Report ID: AK2147

QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63240 : LCS63240:2 LCS

Matrix

: GW/ChemW

Prep Method

				and the second second second second	
	Spike	LCS		rcs	Limits
Parameter	Added	Conc	Units	%REC	%REC
METHYLCYCLOHEXANE	50.00	51.24	ug/l	102	62-123
METHYLENE CHLORIDE	50.00	51.98	ug/l	104	70-120
STYRENE	50.00	52.84	ug/l	106	78-113
TETRACHLOROETHENE	50.00	52.52	ug/l	105	70-120
TOLUENE	50.00	52.54	ug/l	105	75-116
TRANS-1,2-DICHLOROETHENE	50.00	54.61	ug/l	109	73-121
TRANS-1,3-DICHLOROPROPENE	50.00	52.03	ug/l	104	73-114
TRICHLOROETHENE	50.00	52,51	ug/l	105	75-119
TRICHLOROFLUOROMETHANE	50.00	55.09	ug/l	110	71-128
VINYL ACETATE	50.00	54.27	ug/l	109	65-142
VINYL CHLORIDE	50.00	51.60	ug/l	103	64-122
XYLENE (TOTAL)	150.0	145.9	ug/l	97	73-116



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Batch Sample List

WorkGroup : WG63223

Description: WC/NO3NO2(5)

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

			PREP	ANALY	CICAL		
Sample ID	Client ID	Run#	Date Time	Date	Time	Analyst	Dilution
L12092001-01	D12-8-50	1		09/27/2012	1633	LES	2
L12092001-02	D12-26-60	1		09/27/2012	1635	LES	2
L12092001-03	D12-26-60A	1		09/27/2012	1643	LES	2
L12092001-04	D12-25-57.5	1		09/27/2012	1645	LES	2
L12092001-05	D12-24-54	1		09/27/2012	1648	LES	2
L12092001-06	D12-23-69	1		09/27/2012	1650	LES	2
MB63223:1	Method Blank	1		09/27/2012	1603	LES	1
LCS63223:1	Laboratory Control Spike	1		09/27/2012	1555	LES	1
MS12091701-04:63223	Matrix Spike	1		09/27/2012	1613	LES	2
MS12092401-02:63223	Matrix Spike	1		09/27/2012	1658	LES	2
MSD12091701-04:63223	Matrix Spike Duplicate	1		09/27/2012	1615	LES	2
MSD12092401-02:63223	Matrix Spike Duplicate	1		09/27/2012	1700	LES	2



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63223 Blank : MB63223:1

Parameter

Result Qual

Units

Matrix : GW/ChemW

Wet Chemistry

EPA 353,2

Date/Time: 09/27/2012 1603

Analyst: LES

Dilution: 1

NITRATE + NITRITE NITROGEN (AS N)

0,0200 U

0.0200

mg/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

Page 37 of 53 Report ID: AK2147

QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63223

MS/MSD : MS12091701-04:63223

MSD12091701-04:63223

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	3.15	4.18	mg/l	103	90-110
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	4.17	mg/l	102	0	10 90-110

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

Page 38 of 53 Report ID: AK2147

QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63223

MS/MSD : MS12092401-02:63223

MSD12092401-02:63223

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %RBC
NITRATE + NITRITE NITROGEN (AS N)	1.00	1.85	2.93	mg/l	108	90-110
Parameter	Spike Added	MSD Conc	Units	MSD %REC	% RPD	Limits %RPD %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	2.93	mg/l	108	0	10 90-110

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63223

: LCS63223:1 LCS

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	LCS Conc	Units	LCS %REC	Limits %REC
NITRATE + NITRITE NITROGEN (AS	N) 0.500	0.502	mg/l	100	90-110



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

Page 40 of 53 Report ID: AK2147

QC Batch Report - Batch Sample List

WorkGroup : WG63334

Description: Alkalinity-GW

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12092001-01	D12-8-50	1		09/26/2012 1500	CDC	1
L12092001-01	D12-26-60	1		09/26/2012 1534	CDC	1
L12092001-03	D12-26-60A	1		09/26/2012 1542	CDC	1
L12092001-04	D12-25-57.5	1		09/26/2012 1548	CDC	1
L12092001-05	D12-24-54	1		09/26/2012 1556	CDC	1
L12092001-06	D12-23-69	1		09/26/2012 1605	CDC	1
D12091908-08:63334	Duplicate	1		09/26/2012 1456	CDC	1
D12092401-02:63334	Duplicate	1		09/26/2012 1632	CDC	1
MB63334:1	Method Blank	1		09/26/2012 1406	CDC	1
LCS63334:1	Laboratory Control Spike	1		09/26/2012 1411	CDC	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63334 Blank : MB63334:1

Result Qua1 Parameter

Matrix : GW/ChemW

ENDPOINT PH

Wet Chemistry

SM 2320B

Dilution: 1 Date/Time: 09/26/2012 1406 Analyst: CDC mg/11.00 U ALKALINITY, TOTAL 4.16

Davis & Floyd, Inc. | PO Drawer 428 | Greenwood, SC 29648 | 816 E. Durst Avenue | Greenwood, SC 29649 | (864) 229-4413 | Fax (864) 229-7119



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63334 LCS

: LCS63334:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Spike Added		Units	LCS %REC		
ALKALINITY, TOTAL	1000	964.8	mg/l	96	90-110	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Sample Duplicates

WorkGroup: WG63334

Duplicate: D12091908-08:63334

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Sample Conc	DUP Conc	RDL	Units	%RPD	RPD	
ΔΙ.ΚΔΙ.ΤΝΤΨΥ. ΤΟΨΑΙ.	21.11	21.61	1.00	mg/l	2	10	

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Sample Duplicates

WorkGroup: WG63334

Duplicate: D12092401-02:63334

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Sample Conc	DUP Conc	RDL	Units	%RPD	RPD
ALKALINITY, TOTAL	43.22	45.23	2.00	mg/l	5	10

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

Page 45 of 53 Report ID: AK2147

QC Batch Report - Batch Sample List

WorkGroup : WG63322 Description: Sulfide

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

			PREP	ANALYTIC	CAL	
Sample ID	Client ID	Run#	Date Time	Date Ti	ime Analyst	Dilution
L12092001-01	D12-8-50	1		09/24/2012 11	108 CDC	:
L12092001-01	D12-26-60	1		09/24/2012 11	109 CDC	:
L12092001-03	D12-26-60A	1		09/24/2012 11	110 CDC	;
L12092001-04	D12-25-57.5	1		09/24/2012 11	111 CDC	
L12092001-05	D12-24-54	1		09/24/2012 11	112 CDC	
L12092001-06	D12-23-69	1		09/24/2012 11	113 CDC	
MB63322:1	Method Blank	1		09/24/2012 11	120 CDC	
CS63322:1	Laboratory Control Spike	1		09/24/2012 13	107 CDC	
MS12092401-02:63322	Matrix Spike	1		09/24/2012 13	118 CDC	
MS12092401-09:63322	Matrix Spike	1		09/24/2012 13	123 CDC	
MSD12092401-02:63322	Matrix Spike Duplicate	1		09/24/2012 13	119 CDC	
MSD12092401-09:63322	Matrix Spike Duplicate	1		09/24/2012 13	123 CDC	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63322 Blank : MB63322:1

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Wet Chemistry SM 4500-S2-D

Date/Time: 09/24/2012 1120 Analyst: CDC Dilution: 1

SULFIDE, TOTAL < 0.0500 U 0.0500 mg/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63322

MS/MSD : MS12092401-02:63322

MSD12092401-02:63322

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
SULFIDE, TOTAL	0.500	< 0.0500	0.528	mg/l	106	81-121
	Spike	MSD _		MSD %REC	%RPD	Limits %RPD %REC
Parameter SULFIDE, TOTAL	Added 0.500	O,536	Units mg/l	107	1	10 81-121

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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Report Date : October 08, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63322

MS/MSD : MS12092401-09:63322

MSD12092401-09:63322

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %rEC
SULFIDE, TOTAL	0.500	< 0.0500	0.532	mg/l	106	81-121
Parameter	Spike Added	MSD Conc	Units	MSD %rec	%RPD	Limits %RPD %REC
SULFIDE, TOTAL	0.500	0.523	mg/l	105	2	10 81-121

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63322

LCS : LCS63322:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter					Limits %REC
SULFIDE, TOTAL	0.500	0.516	mg/l	103	90-110



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Batch Sample List

WorkGroup : WG63295 Description: IC-GW

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12092001-01	D12-8-50	1		09/26/2012 2222	CDC	1
1,12092001-01	D12-26-60	1		09/26/2012 2253	CDC	1
L12092001-03	D12-26-60A	1		09/26/2012 2323	CDC	1
L12092001-04	D12-26-57.5	1		09/26/2012 2354	CDC	1
L12092001-05	D12-24-54	1		09/27/2012 0125	CDC	1
L12092001-06	D12-23-69	1		09/27/2012 0156	CDC	1
MB63295:1	Method Blank	1		09/26/2012 1040	CDC	1
LCS63295:1	Laboratory Control Spike	1		09/26/2012 1111	CDC	1
MS12091701-04:63295	Matrix Spike	1		09/26/2012 1717	CDC	1
MSD12091701-04:63295	Matrix Spike Duplicate	1		09/26/2012 1747	CDC	1



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

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Report Date : October 08, 2012

Contact : BRYON DAHLGREN

QC Batch Report - Method Blanks

WorkGroup: WG63295

Blank

: MB63295:1

Parameter

Result

Qual

Units

Matrix : GW/ChemW

Wet Chemistry

Date/Time: 09/26/2012 1040

Analyst: CDC

Dilution: 1

SW846 9056A

SULFATE



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

Page 52 of 53 Report ID: AK2147

QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63295

MS/MSD : MS12091701-04:63295

MSD12091701-04:63295

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

Spike	Sample	MS		MS	Limits
Added	Conc	Conc	Units	%REC	%REC
10.00	< 1.00	10.24	mg/l	102	80-120
•					
Spike	MSD		MSD		Limits
Added	Conc	Units	%REC	%RPD	%RPD %REC
10.00	10.21	mg/l	102	0	15 80-120
	Added 10.00 Spike Added	Added Conc 10.00 < 1.00 Spike MSD Added Conc	Added Conc Conc 10.00 < 1.00 10.24 Spike MSD Added Conc Units	Added Conc Conc Units 10.00 < 1.00 10.24 mg/l Spike MSD MSD Added Conc Units %REC	Added Conc Conc Units %REC 10.00 < 1.00 10.24 mg/l 102 Spike MSD MSD Added Conc Units %REC %RPD

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 08, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63295

LCS

: LCS63295:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

Parameter	Nddod Nddod	LCS Conc	Units	LCS %REC	Limits %REC
SULFATE	10.00	9.82	mg/l	98	80-120



Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RDL	Report Detection Limit	MDL	Method Detection Limit
PQL	Practical Quantitation Limit	DL	Detection Limit
LOQ	Limit of Quantitation	LOD	Limit of Detection
SQL	Sample Quantitation Limit	TIC	Tentatively Identified Compound
С	Degrees Centigrade	F	Degrees Fahrenheit
umhos/cm	micromhos/cm	meq	milliequivalents
su	Standard Units		

mg/l, mg/kg

Units of concentration in milligrams per liter for liquids and milligrams per kilogram for solids. Also

referred to as Parts Per Million or "ppm".

ug/l, ug/kg

Units of concentration in micrograms per liter for liquids and micrograms per kilograms for solids.

Also referred to as Parts Per Billion or "ppb".

<

Less Than

>

Greater Than

Solid samples (i.e. soil, sludge, and solid waste) are reported on an as received basis unless otherwise noted.

Data Qualifiers:

- B Analyte also detected in the method blank.
- C Amendable Cyanide is a negative value due to an unknown interference.
- F Surrogate Standard Recovery exceeds the laboratory established acceptance limits.
- J The reported result is an estimated value (eg matrix interference observed or concentration outside the quantitation range.
- N Non-target analyte. The analyte is TIC (using mass spectrometry).
- P Concentration difference between primary and confirmation columns >40%.
- Q One or more quality control criteria failed (e.g., LCS recovery, surrogate spike recovery or CCV
- U Final concentration is below the detection limit.
- * Defined in report comments.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or biological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of the material involved, the test results will be meaningless. If you have any questions regarding the proper techniques of collecting samples, please contact us. However, we cannot be held responsible for sample integrity unless sampling has been performed by a member of our staff.

<u>REPRESENTATION AND LIMITATION OF LIABILITY</u> – The accuracy of all analytical results for samples begins as it is received by the laboratory. Integrity of the sample begins at the time it is placed in the possession of authorized Davis & Floyd, Inc. Laboratories personnel. All other warranties, expressed or implied, are disclaimed. Liability is limited to the cost of the analysis.



Chain of Custody Record

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Q,
-

		Johnnenss		Received By	kelinguished By	The state of the s		P. Williams	The state of the s	17.000		9	17: P B/CZF	02-23-69	72-24-54	012-25-57.5	017-26-60-0	00225-60	012-8-50	Sample Description	NO IIC	Mark	Collected By	Mark Hartford	Contact	AECOM	Client
			17/163		Date Time Relinquished By							7		9-19-12 134	3-12-16-25	Scanning M	21-17-12		9-17-12-11	Time	Date Initiated S:	Harterl		Bryon Dahlgren	Auriga - Sptbg, SC	061576.08	Project / Site Location
				- [~	Date 9/9~			ENT	ER N	UMB	ER O	FSA	9730 X Y Y P	X V CON	X U	S × × ERS	1440 X X X	NE X S O	1140 x 5 6	Type Total	Composite Grab Matrix Type Number of Containers PARAMETERS	(Optional)	Atmospheric Conditions	Copy		816 E. L	Lab Certifi
Sta Mu	Circle: C or F En	lamber larvest		Time	Time								7	W		1	3	Ť	~	AAAE	VOC's SO4, Alkalinity Sulfide	3x40 G TFE 500 P		Tumaround	Email: Laboratory@davisfloyd.com	816 E. Durst Avenue, Greenwood, SC 29649	Lab Certification ID: SC-24110, NC-25, NELAP-E87633, NY-11996, TN-2923, VA-934
Start Date: Multiplier	Ending	Flow Measurement (Note 1) Beginning	17595. MC	ceived in Laboratory By	Relinquished By											energy (H	NO3/NO2 1,4-Dioxane	125 P 3x40 G TFE	Required Parameters, Containers and Preservatives (P*)	Tumaround Requirements: 1, Pstandard Tumaround Requirements: A Standard		SC 29649 (864) 229-4	- 25 NELAP - E87633. NY
	Military and the second	Time	8	Date	Date		-																and Preservatives (P*)	Standard [] Data Hackage (Specify Level:	Internet : www.davisfloyd.com	(864) 229-4413 Fax: (864) 229-7119	- 11996 TN - 2923 VA -
temperature does not have adequate time to reach 4°C. Custody		Note:Indicate Receipt	0740	नं	Time Shipped Via											Tarret and the second s				нот	Indicate any known hazards with a		ď	7 2 3 4)			
elivery: ct / Bro	Yes I No Temp(C)	Receipt Information Cooler ID (if available):	rachily indiffer	o Minaper	hipped Via			***************************************											70.	Comments			Special Instructions	PO / Quote Number		Laboratory Work Request	Office Hee Orl
Yes Non	P)		2	_								70	0	05	40	S	20	2	Fraction	13092001	SC	State	o 75		4	

Matrix Type Definitions 1-Drinking Water 2 - Clean Water 5 - Groundwater 7 - Soil/Sediment 8 - Liquid Sludge 9 - Oil 12 - Air (P) Preservative Definitions A - None B - H2SO4 C - HCl D - HNO3 E - Zn Acetate, NaOH F - Filtered G - Na2S2O3

(Note 1) For Discharge Measurements

Davis & Floyd, Inc. FL02_03 (04/10)



October 10, 2012

BRYON DAHLGREN AECOM 1455 OLD ALABAMA RD. SUITE 170 ROSWELL, GA 30076

Report ID: AK2183 Page 1 of 71

Login Number

:L12091701

Project Number

:61576.08

Description

:AURIGA - SPARTANBURG, SC

Dear Bryon Dahlgren:

We are pleased to provide the enclosed analytical results for the samples received by Davis & Floyd, Inc. on September 17, 2012.

A formal Quality Assurance/Quality Control program is maintained by Davis & Floyd, which is designed to meet or exceed the ISO/IEC 17025, EPA, NELAP or other appropriate regulatory requirements. All analytical analyses for this project met QA/QC criteria and the results are within the 99% confidence interval for each method unless otherwise stated in the footnotes. This report is to be reproduced only in full.

Feel free to contact our Client Services Representative at (864) 229-4413 if further explanation of the analysis is required. Unless other arrangements have been made, samples will be disposed of or returned 14 days from the date of the report. We appreciate the opportunity to provide services to your firm.

Sincerely,

DAVIS & FLOYD, INC.

John H. McCord, Jr. Laboratory Manager

This report conatins a TOTAL of _________

pages, including attachments.

Initials:



SC Certification Number: 24110001

Client : AECOM

E.

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

Report Date

: October 10, 2012

ROSWELL, GA 30076 Contact : BRYON DAHLGREN

Page 2 of 71

Report ID: AK2183

Certificate of Analysis Report

Sample ID	Client ID	Date Collected	Date Received	J
L12091701-01	D12-15-60	09/12/2012 1035	09/17/2012	
L12091701-02	0010F-4-SW	09/12/2012 1115	09/17/2012	
L12091701-03	NORTH HEAD WALL - SW	09/12/2012 1150	09/17/2012	
L12091701-04	D12-14-64 MS/MSD	09/12/2012 1225	09/17/2012	
L12091701-05	D12-11-40.5	09/12/2012 1700	09/17/2012	
L12091701-06	D12-12-60	09/13/2012 1040	09/17/2012	
L12091701-07	WTN16-0010F-SW	09/13/2012 1350	09/17/2012	
L12091701-08	D12-16-64	09/13/2012 1400	09/17/2012	
L12091701-09	D12-13-47.5	09/14/2012 0945	09/17/2012	
L12091701-10	D12-13-37	09/14/2012 1150	09/17/2012	
L12091701-11	D12-6-45	09/14/2012 1550	09/17/2012	
L12091701-12	TRIP BLANK #1	09/03/2012 0730	09/17/2012	
L12091701-13	TRIP BLANK #2	09/03/2012 0730	09/17/2012	

This data report has been prepared and reviewed in accordance with standard operating procedures. Test results relate only to the sample tested.

Please direct any questions to your Project Manager.

Reviewed by

John H. McCord, Jr.

Laboratory Manager



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 10, 2012

Page 3 of 71 Report ID: AK2183

Certificate of Analysis

Client ID: D12-15-60 Sample ID: L12091701-01 Date Collected: 09/12/2012 1035

Date Received : 09/17/2012

Units Result Qual Parameter

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/17/2012 1622	Analyst: PAP/JVB	D	ilution: 1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFI	LUOROETHANE <	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	Ü	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5,00	U	5,00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	Ξ <	5.00	U	5,00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5,00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l
ETHYLBENZENE	<	5.00	U	5.00	ug/l



LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

Page 4 of 71 Report ID: AK2183

Certificate of Analysis

Client ID: D12-15-60 Sample ID: L12091701-01 Date Collected: 09/12/2012 1035

Date Received : 09/17/2012

Parameter		Result	Qual	RDL	Units	
			-10-10-10-10-10-10-10-10-10-10-10-10-10-	******		
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5,00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5,00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5,00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5,00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		115	응	(74-140)		
Surr: BROMOFLUOROBENZENE		101	용	(77-133)		
Surr: TOLUENE-D8		99	응	(77-131)		
Date/Time: 09/18/2012 1156 Analys	t: PAP/JVB		Dilution	: 100	******************************	,
CHLOROFORM		10600		500	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		104	음	(74-140)		
Surr: BROMOFLUOROBENZENE		99	응	(77-133)		
Surr: TOLUENE-D8		99	용	(77-131)		
Chemistry						
A 353.2						
Date/Time: 09/27/2012 1608 Analys	t: LES	***********	Dilution	: 2	***************************************	
NITRATE + NITRITE NITROGEN (AS N)		2.41		0.0400	mg/l	
2320B						
Pate/Time: 09/19/2012 1456 Analys	t: CDC		Dilution	: 1	*******************************	
ALKALINITY, TOTAL		10.6		1.00	mg/l	
ENDPOINT PH		4.16			su	
4500-S2-D						
Date/Time: 09/17/2012 1524 Analys	t: CDC		Dilution	: 1		
SULFIDE, TOTAL	<	0.0500	Ū	0.0500	mg/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

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Certificate of Analysis

Client ID: **D12-15-6**0

Sample ID: L12091701-01

Date Collected: 09/12/2012 1035

Date Received : 09/17/2012

RDL

Parameter

Result

Qual

Units

SW846 9056A

Analyst: CDC

mg/1

Dilution: 1 Date/Time: 09/26/2012 1616 1.00 1.00 U SULFATE



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

Page 6 of 71 Report ID: AK2183

Certificate of Analysis

Client ID: 0010F-4-SW

Sample ID: L12091701-02

Date Collected: 09/12/2012 1115

Date Received : 09/17/2012

Parameter

Qual

RDL

Units

Matrix : WW/STW/SFW

Volatile Organics

1,4-DIOXANE

SW846 8260B

Date/Time: 09/17/2012 2319

Analyst: PAP

Dilution: 1

221

10.0 ug/l

Surr: 1,4-DIOXANE-D8

111 %

(D-)



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 10, 2012

Page 7 of 71 Report ID: AK2183

Certificate of Analysis

Client ID: NORTH HEAD WALL - SW Sample ID: L12091701-03

Date Collected: 09/12/2012 1150

Date Received : 09/17/2012

Parameter

Result

Qual

Units

Matrix : WW/STW/SFW

Volatile Organics

SW846 8260B

Date/Time: 09/18/2012 0110

Analyst: PAP

Dilution: 1

ug/l

1,4-DIOXANE Surr: 1,4-DIOXANE-D8

73.4 103 %

(D-)



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

Project Number: 61576.08

SUITE 170

ROSWELL, GA 30076

Report Date : October 10, 2012

Contact : BRYON DAHLGREN

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Certificate of Analysis

Client ID: D12-14-64 MS/MSD Sample ID: L12091701-04

Date Collected: 09/12/2012 1225

Date Received : 09/17/2012

Parameter

Result

Qual

Units

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/17/2012 2031 Analyst:	PAP/JVB	D	ilution	: 1	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	Ū	5.00	ug/l



SW846 9056A

SULFATE

Date/Time: 09/26/2012 1646

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

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Certificate of Analysis

Client ID: D12-14-64 MS/MSD Sample ID: L12091701-04

Date Collected: 09/12/2012 1225

Date Received : 09/17/2012

Parameter		Result	Qual	RDL	Units
- Wayness					
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	ប	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		103	용	(74-140)	
Surr: BROMOFLUOROBENZENE		97	ક	(77-133)	
Surr: TOLUENE-D8		97	왐	(77-131)	
: Chemistry					
1 353.2					
	Analyst: LES		Dilution	: 2	
NITRATE + NITRITE NITROGEN	(AS N)	3.15		0.0400	mg/l
2320B					
Date/Time: 09/19/2012 1534	Analyst: CDC	:	Dilution	: 1	
ALKALINITY, TOTAL	***************************************	69.3		1.00	mg/l
ENDPOINT PH		4.48			su
4500-S2-D					
Date/Time: 09/17/2012 1525	Analyst: CDC		Dilution	1: 1	
SULFIDE, TOTAL	<	0.0500	Ū	0.0500	mg/l

Analyst: CDC

Dilution: 1

1.00 U

1.00

mg/1



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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Report Date : October 10, 2012

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Certificate of Analysis

Client ID: D12-11-40.5

Sample ID: L12091701-05

Date Collected: 09/12/2012 1700

Date Received : 09/17/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/17/2012 1717	Analyst: PAP/JVB	I	oilution	: 1	***********************************	***********
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFL	JUOROETHANE <	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5,00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5,00	U	5.00	ug/l	
ACETONE		18.2		10.0	ug/l	
BENZENE	<	5.00	U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM		16,0		5.00	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE		25.7		5.00	ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	Ū	5.00	ug/l	
CYCLOHEXANE	<	5.00	U	5.00	ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l	
DICHLORODIFLUOROMETHANE	<	5,00	U	5.00	ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

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Certificate of Analysis

Client ID: D12-11-40.5 Sample ID: L12091701-05 Date Collected: 09/12/2012 1700

Date Received : 09/17/2012

Parameter		Result	Qua1	RDL	Units
ETHYLBENZENE	<	5.00	Ü	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5,00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		105	용	(74-140)	
Surr: BROMOFLUOROBENZENE		100	용	(77-133)	
Surr: TOLUENE-D8		100	용	(77-131)	
t Chemistry					
PA 353.2					
Date/Time: 09/27/2012 1618	Analyst: LES		Dilution:	2	
NITRATE + NITRITE NITROGEN	(AS N)	2.06		0.0400	mg/l
1 2320B					
Date/Time: 09/19/2012 1550	Analyst: CDC		Dilution:		
ALKALINITY, TOTAL		46.2		2.00	mg/l
ENDPOINT PH		4.49			su
4 4500-S2-D					
Date/Time: 09/17/2012 1526	Analyst: CDC		Dilution:	: 1	

Date/Time: 09/17/2012 1526 Analyst: CDC Dilution: 1 SULFIDE, TOTAL

0.0500 U

0.0500 mg/l

SW846 9056A

SULFATE

Date/Time: 09/26/2012 1919 Analyst: CDC

Dilution: 1



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 10, 2012

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Certificate of Analysis

Client ID: D12-12-60

Sample ID: L12091701-06

Date Collected: 09/13/2012 1040

Date Received : 09/17/2012

RDL

Parameter

Result

Qua1

Units

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/17/2012 1745 Analyst: PA	.P/JVB	D	ilution:	1	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5,00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE		14.0		10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	*	134		5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076 Repor

Contact : BRYON DAHLGREN

Report Date : October 10, 2012

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Certificate of Analysis

Client ID: **D12-12-60**Sample ID: L12091701-06

Date Collected: 09/13/2012 1040

Date Received : 09/17/2012

Parameter			Result	Qua1	RDL	Units
ETHYLBENZENE		<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE		<	5.00	U	5.00	ug/l
METHYL ACETATE		<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER		<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE		<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE		<	5.00	U	5.00	ug/l
STYRENE		<	5.00	U	5.00	ug/l
TETRACHLOROETHENE		<	5.00	U	5.00	ug/l
TOLUENE		<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE		<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE		<	5.00	U	5.00	ug/l
TRICHLOROETHENE		<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE		<	5.00	U	5.00	ug/l
VINYL ACETATE		<	10.0	U	10.0	ug/l
VINYL CHLORIDE		<	10.0	U	10.0	ug/l
XYLENE (TOTAL)		<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4			106	%	(74-140)	
Surr: BROMOFLUOROBENZENE			100	왐	(77-133)	
Surr: TOLUENE-D8			100	용	(77-131)	
et Chemistry						
PA 353.2						
Date/Time: 09/27/2012 1620	Analyst: LES		****	Dilution:	2	
NITRATE + NITRITE NITROGEN ((AS N)		2.13		0.0400	mg/l
M 2320B						
Date/Time: 09/19/2012 1555	Analyst: CDC			Dilution:	1	
ALKALINITY, TOTAL			13,1		1.00	mg/l
ENDPOINT PH			4.19			su
M 4500-S2-D						
Date/Time: 09/17/2012 1527	Analyst: CDC			Dilution:	. 1	
SULFIDE, TOTAL		<	0.0500	U	0.0500	mg/l
W846 9056A						
Date/Time: 09/26/2012 1950	Analyst: CDC		n amanan shahara fashaha ka ka ka ka ka ka ka ka ƙasha ƙasha ƙ	Dilution:	. 1	
SULFATE		<	1.00	U	1.00	mg/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

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Certificate of Analysis

Client ID: WTN16-0010F-SW

Sample ID: L12091701-07

Date Collected: 09/13/2012 1350

Date Received : 09/17/2012

Parameter

Result

Qua1

Units

Matrix : WW/STW/SFW

Volatile Organics

1,4-DIOXANE

SW846 8260B

Date/Time: 09/18/2012 0137

Analyst: PAP

Dilution: 1

ug/l 10.0

Surr: 1,4-DIOXANE-D8

97.2 109 %

(D-)



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

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Certificate of Analysis

Client ID: **D12-16-64**Sample ID: L12091701-08

Date Collected: 09/13/2012 1400

Date Received : 09/17/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

Time: 09/17/2012 1812 Analyst	: PAP/JVB	L	ilution:	1	
.,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHA	ANE <	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	Ū	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	Ū	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	Ū	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5,00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

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Certificate of Analysis

Client ID: D12-16-64 da---1- TD: T12001701 00 Date Collected: 09/13/2012 1400

Date Received : 09/17/2012

Parameter		Result	Qual	RDL	Units	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10,0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	Ū	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5,00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		104	용	(74-140)		
Surr: BROMOFLUOROBENZENE		98	용	(77-133)		
Surr: TOLUENE-D8		98	음	(77-131)		
hemistry						
53.2						
e/Time: 09/27/2012 1623 Analys	t: LES		Dilution:	2	.,	
NITRATE + NITRITE NITROGEN (AS N)		2.73		0.0400	mg/l	

Date/Time: 09/2//2012 1023	AMALYSC: DED		D114010 2		
NITRATE + NITRITE NITROGEN	(AS N)	2.73		0.0400	mg/l
SM 2320B					
Date/Time: 09/19/2012 1604	Analyst: CDC		Dilution: 1	***************************************	
ALKALINITY, TOTAL		55,3		2.00	mg/l
ENDPOINT PH		4.49			su
SM 4500-S2-D					
Date/Time: 09/17/2012 1528	Analyst: CDC		Dilution: 1		
SULFIDE, TOTAL		< 0.0500	Ū	0.0500	mg/l
SW846 9056A					
Date/Time: 09/26/2012 2020	Analyst: CDC		Dilution: 1		
SULFATE		< 1.00	U	1.00	mg/l



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD. SUITE 170

ROSWELL, GA 30076

Report Date : October 10, 2012

Contact : BRYON DAHLGREN

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Certificate of Analysis

Client ID: D12-13-47.5

Date Collected: 09/14/2012 0945

Sample ID: L12091701-09

Date Received : 09/17/2012

Parameter

Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/17/2012 1840 Analyst: PA	AP/JVB	Dilution:	: 1	
1,1,1-TRICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U	10.0 ug/l	
1,1,2-TRICHLOROETHANE	<	5.00 U	5,00 ug/l	
1,1-DICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,1-DICHLOROETHENE	<	5.00 U	5.00 ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,2,4-TRICHLOROBENZENE	<	5,00 U	5,00 ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00 ug/l	
1,2-DIBROMOETHANE	<	5.00 U	5.00 ug/l	
1,2-DICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,2-DICHLOROETHANE	<	5.00 U	5.00 ug/l	
1,2-DICHLOROPROPANE	<	5.00 U	5.00 ug/l	
1,3-DICHLOROBENZENE	<	5.00 U	5.00 ug/l	
1,4-DICHLOROBENZENE	<	5.00 U	5.00 ug/l	
2-BUTANONE		13.3	10.0 ug/l	
2-HEXANONE	<	10.0 U	10.0 ug/l	
4-METHYL-2-PENTANONE	<	5.00 U	5.00 ug/l	
ACETONE		58.2	10.0 ug/l	
BENZENE	. <	5.00 U	5.00 ug/l	
BROMODICHLOROMETHANE	<	5.00 U	5.00 ug/l	
BROMOFORM	<	5.00 U	5.00 ug/l	
BROMOMETHANE	<	10.0 U	10.0 ug/l	
CARBON DISULFIDE	<	5.00 U	5.00 ug/l	
CARBON TETRACHLORIDE	<	5.00 U	5.00 ug/l	
CHLOROBENZENE	<	5.00 U	5.00 ug/l	
CHLOROETHANE	<	10.0 U	10.0 ug/l	
CHLOROMETHANE	<	10.0 U	10.0 ug/l	
CIS-1,2-DICHLOROETHENE		7.02	5.00 ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00 U	5.00 ug/l	
CYCLOHEXANE	<	5.00 U	5.00 ug/l	
DIBROMOCHLOROMETHANE	<	5.00 U	5.00 ug/l	
DICHLORODIFLUOROMETHANE	<	5.00 U	5.00 ug/l	
ETHYLBENZENE	<	5.00 U	5.00 ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

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Certificate of Analysis

Client ID: D12-13-47.5 Sample ID: L12091701-09 Date Collected: 09/14/2012 0945

Date Received : 09/17/2012

Parameter		Result	Qual	RDL	Units

ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5,00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE		41.4		5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	Ū	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		105	용	(74-140)	
Surr: BROMOFLUOROBENZENE		100	용	(77-133)	
Surr: TOLUENE-D8		98	용	(77-131)	
ate/Time: 09/18/2012 1446 Analys	: PAP/JVB		Dilution	: 50	
CHLOROFORM		4210		250	ug/l
Surr: 1,2-DICHLOROETHANE-D4		101	용	(74-140)	
Surr: BROMOFLUOROBENZENE		97	음	(77-133)	
Surr: TOLUENE-D8		97	응	(77-131)	
Chemistry					
353.2					
ate/Time: 09/27/2012 1625 Analys	t: LES		Dilution		
NITRATE + NITRITE NITROGEN (AS N)		2.03		0.0400	mg/1.
2320B					
ate/Time: 09/19/2012 1631 Analys	t: CDC		Dilution		***************************************
ALKALINITY, TOTAL		66.3		2.00	mg/l
ENDPOINT PH		4.50			su
4500~S2-D					
Pate/Time: 09/17/2012 1529 Analys	t: CDC	*******	Dilution		
SULFIDE, TOTAL	<	0.0500	U	0.0500	mg/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

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Certificate of Analysis

Client ID: D12-13-47.5

Sample ID: L12091701-09

Date Collected: 09/14/2012 0945

Date Received : 09/17/2012

Parameter

Result

Qua1

RDL

Units

SW846 9056A

Date/Time: 09/26/2012 2051

Analyst: CDC

Dilution: 1



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD. SUITE 170

ROSWELL, GA 30076

Qual

Report Date : October 10, 2012

Contact : BRYON DAHLGREN

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Certificate of Analysis

Client ID: D12-13-37 Sample ID: L12091701-10 Date Collected: 09/14/2012 1150

Date Received : 09/17/2012

Result Parameter

Units

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/17/2012 1908	Analyst: PAP/JVB	D	ilution: 1		
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5,00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIF	LUOROETHANE <	10.0	Ū	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANI	₹ <	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5,00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE		16.1		10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5,00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5,00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE		5.01		5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	Ŭ	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5,00	ug/l
ETHYLBENZENE	<	5.00	Ū	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 10, 2012

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Certificate of Analysis

Client ID: D12-13-37 1 -- 110001001 10

Date Collected: 09/14/2012 1150 Data Pagained , 09/17/2012

		Result	Oual	RDL	Units	
Parameter		Kesuit	Quar	NO II	- CALLOD	
ISOPROPYL BENZENE	<	5.00	Ū	5.00	ug/l	
METHYL ACETATE	<	10.0	Ū	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE		18.4		5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	Ŭ	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	Ū	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5,00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	Ū	10.0	ug/l	
XYLENE (TOTAL)	<	5,00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		103	용	(74-140)		
Surr: BROMOFLUOROBENZENE		97	용	(77-133)		
Surr: TOLUENE-D8		97	음	(77-131)		
ate/Time: 09/18/2012 1251 Analy	st: PAP/JVB		Dilution	: 20		
CHLOROFORM		3140		100	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		105	용	(74-140)		
Surr: BROMOFLUOROBENZENE		98	ક	(77-133)		
Surr: TOLUENE-D8		98	ક	(77-131)		
Chemistry						
353.2						
Date/Time: 09/27/2012 1628 Anal	st: LES		Dilution	: 2	***************************************	
NITRATE + NITRITE NITROGEN (AS N)		2,27		0.0400	mg/l	

Date/IIMe. UJ/Z//ZUIZ IUZU				***************************************
NITRATE + NITRITE NITROGEN	(AS N)	2,27	0.0400	mg/l
SM 2320B				
Date/Time: 09/19/2012 1642	Analyst: CDC	Dilution: 1		
ALKALINITY, TOTAL		45.7	1.00	mg/l
ENDPOINT PH		4.47		su
SM 4500-S2-D				
Date/Time: 09/17/2012 1534	Analyst: CDC	Dilution: 1		***************************************
SIII.FIDE TOTAL	<	0.0500 U	0.0500	mg/1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

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Certificate of Analysis

Client ID: D12-13-37

Sample ID: L12091701-10

Date Collected: 09/14/2012 1150

Date Received : 09/17/2012

Parameter

SULFATE

Result

Qual

Units

SW846 9056A

Date/Time: 09/26/2012 2121

Analyst: CDC

Dilution: 1 1.00 U

1.00 mg/l



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 10, 2012

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Certificate of Analysis

Client ID: D12-6-45 Sample ID: L12091701-11 Date Collected: 09/14/2012 1550

Date Received : 09/17/2012

Parameter

Result Qual

RDL Units

Matrix : GW/ChemW

Volatile Organics

/Time: 09/17/2012 1936 Analyst: PA	P/JVB	E	ilution:	: 1	***************************************
L,1,1-TRICHLOROETHANE	<	5.00	Ŭ	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	Ü	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	Ŭ	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	Ü	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5,00	ug/l
ACETONE		13.2		10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	Ü	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	Ŭ	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE		48.3		5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



Date/Time: 09/26/2012 2152 Analyst: CDC

SW846 9056A

SULFATE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

Page 24 of 71 Report ID: AK2183

Certificate of Analysis

Client ID: D12-6-45

Sample ID: L12091701-11

Date Collected: 09/14/2012 1550

Date Received : 09/17/2012

Dilution: 1

Parameter		Result	Qua1	RDL	Units	
		F 00	***	5 00	/1	
ETHYLBENZENE	<	5.00	Ū	5.00	ug/1	
ISOPROPYL BENZENE	<	5.00	Ŭ	5.00	ug/1	
METHYL ACETATE	<	10.0	Ŭ	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	Ŭ 	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	Ŭ	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	Ŭ	5.00	ug/l	
STYRENE	<	5.00	Ŭ	5.00	ug/1	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		101	승	(74-140)		
Surr: BROMOFLUOROBENZENE		97	용	(77-133)		
Surr: TOLUENE-D8		97	용	(77-131)		
t Chemistry						
PA 353.2						
Date/Time: 09/27/2012 1630 Analy	st: LES		Dilution	1: 2		
NITRATE + NITRITE NITROGEN (AS N)		1.96		0.0400	mg/l	
1 2320B						
Date/Time: 09/19/2012 1704 Analy	st: CDC		Dilution	1: 1		
ALKALINITY, TOTAL		82.4		2.00	mg/l	
ENDPOINT PH		4.46			su	
1 4500-S2-D						
Date/Time: 09/17/2012 1535 Analy	st: CDC		Dilution	1: 1		
SULFIDE, TOTAL	<	0.0500	U	0.0500	mg/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

Page 25 of 71 Report ID: AK2183

Certificate of Analysis

Client ID: TRIP BLANK #1

Sample ID: L12091701-12

Date Collected: 09/03/2012 0730

Date Received : 09/17/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/17/2012 1554 Analyst: PA	AP/JVB		Dilution	1: 1		
1,1,1-TRICHLOROETHANE	<	5.00	Ū	5.00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5,00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5,00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5,00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,3-DICHLOROBENZENE	<	5,00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5.00	U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM	<	5.00	U	5.00	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
CYCLOHEXANE	<	5.00	U	5,00	ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5,00	ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l	



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD. SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 10, 2012

Page 26 of 71 Report ID: AK2183

Certificate of Analysis

Client ID: TRIP BLANK #1 Sample ID: L12091701-12

Date Collected: 09/03/2012 0730

Date Received : 09/17/2012

Parameter		Result	Qual	RDL	Units
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		100	용	(74-140)	
Surr: BROMOFLUOROBENZENE		98	૾	(77-133)	
Surr: TOLUENE-D8		97	용	(77-131)	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

Page 27 of 71 Report ID: AK2183

Certificate of Analysis

Client ID: TRIP BLANK #2 Sample ID: L12091701-13

Date Collected: 09/03/2012 0730

Date Received : 09/17/2012

Parameter

Result Qual RDL

Units

Matrix : WW/STW/SFW

Volatile Organics

SW846 8260B

Dilution: 1 Date/Time: 09/17/2012 1748 Analyst: PAP

10.0 U 116 %

10.0 ug/l

Surr: 1,4-DIOXANE-D8

(D-)



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

Page 28 of 71 Report ID: AK2183

QC Summary Data



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

Page 29 of 71 Report ID: AK2183

QC Batch Report - Batch Sample List

WorkGroup : WG63208
Description: VO/8260/TCL

Matrix

: GW/ChemW

Prep Method

Sample ID	Client ID	Run#	PREP Date Time	ANALYTICAL Date Time		
Sample ID	Client ID	Run#	Date Time	Data Dimo		
				Date Time	Analyst	Dilution
L12091701-01	D12-15-60	1		09/17/2012 1622	PAP/JVB	
L12091701-04	D12-14-64 MS/MSD	1		09/17/2012 2031	PAP/JVB	
L12091701-05	D12-11-40.5	1		09/17/2012 1717	PAP/JVB	
L12091701-06	D12-12-60	1		09/17/2012 1745	PAP/JVB	
L12091701~08	D12-16-64	1		09/17/2012 1812	PAP/JVB	
L12091701-09	D12-13-47.5	1		09/17/2012 1840	PAP/JVB	
L12091701-10	D12-13-37	1		09/17/2012 1908	PAP/JVB	
L12091701-11	D12-6-45	1		09/17/2012 1936	PAP/JVB	
L12091701-12	TRIP BLANK #1	1		09/17/2012 1554	PAP/JVB	
MB63208:1	Method Blank	1		09/17/2012 1457	pap/jvb	
LCS63208:1	Laboratory Control Spike	1		09/17/2012 2318	PAP/JVB	
MS12091701-04:63208	Matrix Spike	1		09/17/2012 2059	PAP/JVB	
MSD12091701-04:63208	Matrix Spike Duplicate	1		09/17/2012 2126	PAP/JVB	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

Page 30 of 71 Report ID: AK2183

QC Batch Report - Surrogates % Recovery

WorkGroup: WG63208

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DCA	BFB	TOL
		74-140	77-133	77-131
L12091701-01	09/17/2012 1622	115	101	99
L12091701-04	09/17/2012 2031	103	97	97
L12091701-05	09/17/2012 1717	105	100	100
L12091701-06	09/17/2012 1745	106	100	100
L12091701-08	09/17/2012 1812	104	98	98
L12091701-09	09/17/2012 1840	105	100	98
L12091701-10	09/17/2012 1908	103	97	97
L12091701-11	09/17/2012 1936	101	97	97
L12091701-12	09/17/2012 1554	100	98	97
MB63208:1	09/17/2012 1457	99	97	97
LCS63208:1	09/17/2012 2318	100	97	96
MS12091701-04:63208	09/17/2012 2059	97	96	95
MSD12091701-04:63208	09/17/2012 2126	99	97	96

DCA - 1,2-DICHLOROETHANE-D4

BFB - BROMOFLUOROBENZENE

TOL - TOLUENE-D8



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

Page 31 of 71 Report ID: AK2183

QC Batch Report - Method Blanks

WorkGroup: WG63208 : MB63208:1 Blank

Units Result Qual Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 09/17/2012 1457	Analyst: PAP/JVB	E	ilution:	1	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFL	JOROETHANE <	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5,00	ug/l
1,1-DICHLOROETHENE	<	5,00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5,00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5,00	U	5.00	ug/l
2~BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	Ω	5.00	ug/l
BROMOFORM	<	5,00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

Page 32 of 71 Report ID: AK2183

QC Batch Report - Method Blanks

WorkGroup: WG63208 Blank : MB63208:1

Parameter		Result	Qual	RDL	Units
arameter		RESULL	Xuur		
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	Ŭ	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5,00	ug/l
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5,00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
JINYL ACETATE	<	10.0	U	10.0	ug/l
JINYL CHLORIDE	<	10.0	U	10.0	ug/l
(YLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		99	응	(74-140)	
Surr: BROMOFLUOROBENZENE		97	웅	(77-133)	
Surr: TOLUENE-D8		97	8	(77-131)	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

Page 33 of 71 Report ID: AK2183

QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63208

MS/MSD : MS12091701-04:63208

MSD12091701-04:63208

Matrix

: GW/ChemW

Prep Method

	Spike	Sample	MS		MS	Limits
Parameter	Added	Conc	Conc	Units	%REC	%REC
1,1,1-TRICHLOROETHANE	50.00	< 5.00	51.48	ug/l	103	75-121
1,1,2,2-TETRACHLOROETHANE	50.00	< 5.00	49.34	ug/l	99	78-114
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	< 10.00	50.74	ug/l	101	64-130
1,1,2-TRICHLOROETHANE	50.00	< 5.00	50.88	ug/l	102	78-113
1,1-DICHLOROETHANE	50.00	< 5.00	51,45	ug/l	103	76-116
1,1-DICHLOROETHENE	50.00	< 5.00	53.43	ug/l	107	71-127
1,2,3-TRICHLOROBENZENE	50.00	< 5.00	47.80	ug/l	96	75-112
1,2,4-TRICHLOROBENZENE	50.00	< 5.00	49.23	ug/l	98	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	< 5.00	46.47	ug/l	93	73-124
1,2-DIBROMOETHANE	50.00	< 5.00	50.13	ug/l	100	79-114
1,2-DICHLOROBENZENE	50.00	< 5.00	50.75	ug/l	102	76-109
1,2-DICHLOROETHANE	50.00	< 5.00	51.88	ug/l	104	74-122
1,2-DICHLOROPROPANE	50.00	< 5.00	51.01	ug/l	102	79-113
1,3-DICHLOROBENZENE	50.00	< 5.00	50.70	ug/l	101	69-118
1,4-DICHLOROBENZENE	50.00	< 5.00	50.00	ug/l	100	74-108
2-BUTANONE	50.00	< 10.00	48.91	ug/l	98	68-134
2-HEXANONE	50,00	< 10.00	46.13	ug/l	92	70-133
4-METHYL-2-PENTANONE	50.00	< 5.00	47.23	ug/l	94	69-135
ACETONE	50,00	< 10.00	54.23	ug/l	108	64-149
BENZENE	50.00	< 5.00	51.23	ug/l	102	77-114
BROMODICHLOROMETHANE	50.00	< 5.00	51.72	ug/l	103	76-123
BROMOFORM	50.00	< 5.00	50,10	ug/l	100	74-124
BROMOMETHANE	50.00	< 10.00	56.52	ug/l	113	64-121
CARBON DISULFIDE	50.00	< 5.00	47.99	ug/l	96	59-124
CARBON TETRACHLORIDE	50.00	< 5.00	52.39	ug/l	105	72-126
CHLOROBENZENE	50.00	< 5.00	51.19	ug/l	102	74-113
CHLOROETHANE	50.00	< 10.00	53.23	ug/l	106	71-121
CHLOROFORM	50.00	< 5.00	52.47	ug/l	105	76-119
CHLOROMETHANE	50.00	< 10.00	53.26	ug/l	107	59-123
CIS-1,2-DICHLOROETHENE	50.00	< 5.00	56.22	ug/l	112	74-118
CIS-1,3-DICHLOROPROPENE	50.00	< 5.00	55.58	ug/l	111	83-125
CYCLOHEXANE	50.00	< 5.00	50.38	ug/l	101	59-126
DIBROMOCHLOROMETHANE	50.00	< 5.00	51.27	ug/l	103	77-121
DICHLORODIFLUOROMETHANE		. 5 00	62.42	ug/l	125	53-141
ETHYLBENZENE	50.00	< 5.00	021.12	37		
1,1112100111111	50.00 50.00	< 5.00	51.41	ug/l	103	70-130
ISOPROPYL BENZENE				= -	103 102	70-130 74-114
	50.00	< 5.00	51.41	ug/l		



Parameter

BROMOMETHANE

METHYLCYCLOHEXANE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

Page 34 of 71 Report ID: AK2183

QC Batch Report - Matrix Spikes and Duplicates

Spike

Added

50.00

WorkGroup: WG63208

MS/MSD : MS12091701-04:63208

MSD12091701-04:63208

Matrix

MS

Conc

52.76

: GW/ChemW

MS

%REC

106

Limits

%REC

61-126

64-121

22

Prep Method

Analtyical Method: SW846 8260B

Units

ug/l

METHYLENE CHLORIDE	50.00	< 5.00	49.97	ug/l	100	71-1	15
STYRENE	50.00	< 5.00	51.52	ug/l	103	75-1	16
TETRACHLOROETHENE	50.00	< 5.00	54.88	ug/l	110	69-1	21
TOLUENE	50.00	< 5.00	50.73	ug/l	101	74-1	15
TRANS-1,2-DICHLOROETHENE	50.00	< 5.00	51.71	ug/l	103	74-1	19
TRANS-1,3-DICHLOROPROPENE	50.00	< 5.00	48.92	ug/l	98	73-1	12
TRICHLOROETHENE	50.00	< 5.00	51.61	ug/l	103	74-1	20
TRICHLOROFLUOROMETHANE	50.00	< 5.00	55.55	ug/l	111	70-1	34
VINYL ACETATE	50,00	< 10.00	49.48	ug/l	99	59-1	46
VINYL CHLORIDE	50.00	< 10.00	55.95	ug/l	112	63-1	24
XYLENE (TOTAL)	150.0	< 5.00	152.4	ug/l	102	73-1	16
	Spike	MSD		MSD		Limi	ts
Parameter	Added	Conc	Units	%REC	%RPD	%RPD	%REC
1,1,1-TRICHLOROETHANE	50.00	51.18	ug/l	102	1	16	75-121
1,1,2,2-TETRACHLOROETHANE	50.00	50.20	ug/l	100	2	18	78-114
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	48.63	ug/l	97	4	18	64-130
1,1,2-TRICHLOROETHANE	50.00	50.79	ug/l	102	0	14	78-113
1,1-DICHLOROETHANE	50.00	51.04	ug/l	102	1	15	76-116
1,1-DICHLOROETHENE	50.00	50.47	ug/l	101	6	16	71-127
1,2,3-TRICHLOROBENZENE	50.00	50.85	ug/l	102	6	20	75-112
1,2,4-TRICHLOROBENZENE	50.00	50.46	ug/l	101	2	18	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	50.41	ug/l	101	8	20	73-124
1,2-DIBROMOETHANE	50.00	51.24	ug/l	102	2	16	79-114
1,2-DICHLOROBENZENE	50.00	49.72	ug/l	99	2	15	76-109
1,2-DICHLOROETHANE	50.00	52,38	ug/l	105	1	16	74-122
1,2-DICHLOROPROPANE	50.0 0	51,82	ug/l	104	2	15	79-113
1,3-DICHLOROBENZENE	50.00	49.67	ug/l	99	2	17	69-118
1,4-DICHLOROBENZENE	50.00	48,63	ug/l	97	3	16	74-108
2-BUTANONE	50.00	53.81	ug/l	108	10	20	68-134
2-HEXANONE	50.00	49.21	ug/l	98	6	20	70-133
4-METHYL-2-PENTANONE	50.00	50.56	ug/l	101	7	19	69-135
ACETONE	50.00	59.24	ug/l	118	9	23	64-149
BENZENE	50.00	51.55	ug/l	103	1	15	77-114
BROMODICHLOROMETHANE	50.00	52.42	ug/l	105	1	16	76-123
BROMOFORM	50.00	51.47	ug/l	103	3	17	74-124

Sample

Conc

< 5.00

52.68

50.00

ug/l

105



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 10, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63208

Matrix

: GW/ChemW

MS/MSD

: MS12091701-04:63208

Prep Method

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MSD12091701-04:63208

Analtyical Method: SW846 8260B

	Spike	MSD		MSD		Limi	ts
Parameter	Added	Conc	Units	%REC	%RPD	%RPD	%REC
CARBON DISULFIDE	50.00	46.43	ug/l	93	3	21	59-124
CARBON TETRACHLORIDE	50.00	51.46	ug/l	103	2	18	72-126
CHLOROBENZENE	50.00	50.24	ug/l	100	2	15	74-113
CHLOROETHANE	50.00	50.28	ug/l	101	6	17	71-121
CHLOROFORM	50.00	51.97	ug/l	104	1	14	76-119
CHLOROMETHANE	50.00	51.85	ug/l	104	3	18	59-123
CIS-1,2-DICHLOROETHENE	50.00	56.11	ug/l	112	0	15	74-118
CIS-1,3-DICHLOROPROPENE	50.00	55.47	ug/l	111	0	16	83-125
CYCLOHEXANE	50.00	49.44	ug/l	99	2	17	59-126
DIBROMOCHLOROMETHANE	50.00	52.17	ug/l	104	2	16	77-121
DICHLORODIFLUOROMETHANE	50.00	60.71	ug/l	121	3	20	53-141
ETHYLBENZENE	50.00	50.38	ug/l	101	2	20	70-130
ISOPROPYL BENZENE	50.00	49.02	ug/l	98	4	17	74-114
METHYL ACETATE	50.00	50.61	ug/l	101	7	19	68-122
METHYL-TERT-BUTYL ETHER	50.00	49.48	ug/l	99	1	16	74-119
METHYLCYCLOHEXANE	50.00	51.89	ug/l	104	2	16	61-126
METHYLENE CHLORIDE	50.00	50.24	ug/l	100	1	17	71-115
STYRENE	50.00 .	51.26	ug/l	103	1	17	75-116
TETRACHLOROETHENE	50.00	54.16	ug/l	108	1	16	69-121
TOLUENE	50.00	50.67	ug/l	101	0	15	74~115
TRANS-1,2-DICHLOROETHENE	50.00	51.06	ug/l	102	1	16	74-119
TRANS-1,3-DICHLOROPROPENE	50.00	49.19	ug/l	98	1	16	73-112
TRICHLOROETHENE	50.00	52.87	ug/l	106	2	15	74-120
TRICHLOROFLUOROMETHANE	50.00	51.66	ug/l	103	7	18	70-134
VINYL ACETATE	50.00	50.44	ug/l	101	2	19	59-146
VINYL CHLORIDE	50.00	54.22	ug/l	108	3	16	63-124
XYLENE (TOTAL)	150.0	151.3	ug/l	101	1	17	73-116

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

LCS

1455 OLD ALABAMA RD.

SUITE 170

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63208

: LCS63208:1

Matrix

: GW/ChemW

Prep Method

	Spike	LCS		LCS	Limits
Parameter	Added	Conc	Units	%REC	%REC
1,1,1-TRICHLOROETHANE	50.00	52.51	ug/l	105	76-120
1,1,2,2-TETRACHLOROETHANE	50.00	51.78	ug/l	104	78-116
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	46.15	ug/l	92	65-125
1,1,2~TRICHLOROETHANE	50.00	52.34	ug/l	105	78-117
1,1-DICHLOROETHANE	50.00	52.14	ug/l	104	75-117
1,1-DICHLOROETHENE	50.00	51.96	ug/l	104	72-125
1,2,3-TRICHLOROBENZENE	50.00	53.80	ug/l	108	75-113
1,2,4-TRICHLOROBENZENE	50.00	51.20	ug/l	102	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	52.28	ug/l	105	77-122
1,2-DIBROMOETHANE	50.00	51.98	ug/l	104	80-116
1,2-DICHLOROBENZENE	50.00	51.60	ug/l	103	76-110
1,2-DICHLOROETHANE	50.00	53.90	ug/l	108	75-121
1,2-DICHLOROPROPANE	50.00	52.90	ug/l	106	79-115
1,3-DICHLOROBENZENE	50.00	51.28	ug/l	103	74-113
1,4-DICHLOROBENZENE	50.00	51.14	ug/l	102	74-109
2-BUTANONE	50.00	53.30	ug/l	107	72-129
2-HEXANONE	50.00	51.36	ug/l	103	73-132
4-METHYL-2-PENTANONE	50.00	52.06	ug/l	104	75-131
ACETONE	50.00	55,31	ug/l	111	70-138
BENZENE	50.00	52,52	ug/l	105	77-116
BROMODICHLOROMETHANE	50.00	53.38	ug/l	107	79-120
BROMOFORM	50.00	52.95	ug/l	106	79-121
BROMOMETHANE	50.00	57.73	ug/l	115	67-122
CARBON DISULFIDE	50.00	49.17	ug/l	98	59-125
CARBON TETRACHLORIDE	50.00	52.48	ug/l	105	74-124
CHLOROBENZENE	50.00	52.23	ug/l	104	75-113
CHLOROETHANE	50.00	53.71	ug/l	107	73-120
CHLOROFORM	50.00	53.65	ug/l	107	75-121
CHLOROMETHANE	50.00	53.03	ug/l	106	60-122
CIS-1,2-DICHLOROETHENE	50.00	53.76	ug/l	108	74-119
CIS-1,3-DICHLOROPROPENE	50.00	55.55	ug/l	111	83-126
CYCLOHEXANE	50.00	47.59	ug/l	95	60-123
DIBROMOCHLOROMETHANE	50.00	52.85	ug/l	106	779-121
DICHLORODIFLUOROMETHANE	50.00	60.78	ug/l	122	55-139
ETHYLBENZENE	50.00	52.45	ug/l	105	70-130
ISOPROPYL BENZENE	50.00	51.65	ug/l	103	74-113
METHYL ACETATE	50.00	50.41	ug/l	101	67-123
METHYL-TERT-BUTYL ETHER	50.00	50.76	ug/l	102	75-120



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1455 OLD ALABAMA RD.

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Contact : BRYON DAHLGREN

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63208

LCS : LCS63208:1

Matrix

: GW/ChemW

Prep Method

	Spike	LCS		LCS	Limits
Parameter	Added	Conc	Units	%REC	%REC
METHYLCYCLOHEXANE	50,00	49.39	ug/l	99	62-123
METHYLENE CHLORIDE	50.00	56.54	ug/l	113	70-120
STYRENE	50.00	52.96	ug/l	106	78-113
TETRACHLOROETHENE	50.00	50.96	ug/l	102	70-120
TOLUENE	50.00	51.70	ug/l	103	75-116
TRANS-1,2-DICHLOROETHENE	50.00	52.83	ug/l	106	73-121
TRANS-1,3-DICHLOROPROPENE	50.00	49.59	ug/l	99	73-114
TRICHLOROETHENE	50.00	52.72	ug/l	105	75-119
TRICHLOROFLUOROMETHANE	50.00	52.78	ug/l	106	71-128
VINYL ACETATE	50.00	50.83	ug/l	102	65-142
VINYL CHLORIDE	50.00	54.93	ug/l	110	64-122
XYLENE (TOTAL)	150.0	155.9	ug/l	104	73-116



SC Certification Number: 24110001

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QC Batch Report - Batch Sample List

WorkGroup : WG63217 Description: VO/8260/TCL

: GW/ChemW

Prep Method

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091701-01	D12-15-60	2		09/18/2012 1156	PAP/JVB	100
L12091701-09	D12-13-47.5	2		09/18/2012 1446	PAP/JVB	50
L12091701-10	D12-13-37	2		09/18/2012 1251	PAP/JVB	20
MB63217:1	Method Blank	1		09/18/2012 1121	PAP/JVB	1
LCS63217:1	Laboratory Control Spike	1		09/18/2012 1514	PAP/JVB	1



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QC Batch Report - Surrogates % Recovery

WorkGroup: WG63217

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DCA 74-140	BFB 77-133	TOL 77-131	
L12091701-01	09/18/2012 1156	104	99	99	
L12091701-09	09/18/2012 1446	101	97	97	
L12091701-10	09/18/2012 1251	105	98	98	
MB63217:1	09/18/2012 1121	102	97	97	
LCS63217:1	09/18/2012 1514	101	101	100	

DCA - 1,2-DICHLOROETHANE-D4 BFB - BROMOFLUOROBENZENE

TOL - TOLUENE-D8



SC Certification Number: 24110001

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QC Batch Report - Method Blanks

WorkGroup: WG63217 Blank : MB63217:1

 \mathtt{RDL} Units Result Qual Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

/Time: 09/18/2012 1121 Analyst: PA	AP/JVB	Dilution	n: 1
1,1,1-TRICHLOROETHANE	<	5.00 Ŭ	5.00 ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00 U	5.00 ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U	10.0 ug/l
1,1,2-TRICHLOROETHANE	<	5.00 U	5.00 ug/l
1,1-DICHLOROETHANE	<	5.00 U	5.00 ug/l
1,1-DICHLOROETHENE	<	5.00 U	5.00 ug/l
1,2,3-TRICHLOROBENZENE	<	5.00 U	5.00 ug/l
1,2,4-TRICHLOROBENZENE	<	5.00 Ŭ	5.00 ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00 ug/l
1,2-DIBROMOETHANE	<	5.00 U	5.00 ug/l
1,2-DICHLOROBENZENE	<	5.00 U	5.00 ug/l
1,2-DICHLOROETHANE	<	5.00 U	5.00 ug/l
1,2-DICHLOROPROPANE	<	5.00 Ŭ	5.00 ug/l
1,3-DICHLOROBENZENE	<	5.00 U	5.00 ug/l
1,4-DICHLOROBENZENE	<	5.00 U	5.00 ug/l
2-BUTANONE	<	10.0 U	10.0 ug/l
2-HEXANONE	<	10.0 U	10.0 ug/l
4-METHYL-2-PENTANONE	<	5.00 U	5.00 ug/l
ACETONE	<	10.0 U	10.0 ug/l
BENZENE	<	5.00 U	5.00 ug/l
BROMODICHLOROMETHANE	<	5.00 U	5.00 ug/l
BROMOFORM	<	5.00 U	5.00 ug/l
BROMOMETHANE	<	10.0 U	10.0 ug/l
CARBON DISULFIDE	<	5.00 U	5.00 ug/l
CARBON TETRACHLORIDE	<	5.00 U	5.00 ug/l
CHLOROBENZENE	<	5.00 U	5.00 ug/l
CHLOROETHANE	<	10.0 U	10.0 ug/l
CHLOROFORM	<	5.00 U	5.00 ug/l
CHLOROMETHANE	<	10.0 U	10.0 ug/l
CIS-1,2-DICHLOROETHENE	<	5.00 U	5.00 ug/l



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QC Batch Report - Method Blanks

WorkGroup: WG63217
Blank : MB63217:1

Parameter		Result	Qua1	RDL	Units
CIS-1,3-DICHLOROPROPENE	<	5.00	Ū	5.00	uq/l
CYCLOHEXANE	<	5.00	Ū	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	Ū	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	Ŭ	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		102	용	(74-140)	
Surr: BROMOFLUOROBENZENE		97	ક	(77-133)	
Surr: TOLUENE-D8		97	응	(77-131)	



SC Certification Number: 24110001

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Contact: BRYON DAHLGREN Page 42

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63217 LCS : LCS63217:1 Matrix : GW/ChemW

Prep Method

	Spike	LCS		LCS	Limits
Parameter	Added	Conc	Units	%REC	%REC
l,1,1-TRICHLOROETHANE	50.00	53.51	ug/l	107	76-120
L,1,2,2-TETRACHLOROETHANE	50.00	50.95	ug/l	102	78-116
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	53.14	ug/l	106	65-125
L,1,2-TRICHLOROETHANE	50.00	52.67	ug/l	105	78-117
, 1-DICHLOROETHANE	50.00	53.03	ug/l	106	75-117
L,1-DICHLOROETHENE	50.00	56.52	ug/l	113	72-125
L,2,3-TRICHLOROBENZENE	50.00	48.79	ug/l	98	75-113
L,2,4-TRICHLOROBENZENE	50.00	50.97	ug/l	102	76-114
L,2-DIBROMO-3-CHLOROPROPANE	50.00	49.62	ug/l	99	77-122
L,2-DIBROMOETHANE	50.00	53.26	ug/l	107	80-116
L,2-DICHLOROBENZENE	50.00	51.97	ug/l	104	76-110
L,2-DICHLOROETHANE	50.00	54.38	ug/l	109	75-121
L,2-DICHLOROPROPANE	50.00	53.56	ug/l	107	79-115
1,3-DICHLOROBENZENE	50.00	51.92	ug/l	1.04	74-113
1,4-DICHLOROBENZENE	50.00	51.68	ug/l	103	74-109
2-BUTANONE	50.00	49.10	ug/l	98	72-129
2-HEXANONE	50.00	47.68	ug/l	95	73-132
4-METHYL-2-PENTANONE	50.00	49.27	ug/l	99	75-131
ACETONE	50.00	49.38	ug/l	99	70-138
BENZENE	50.00	53.74	ug/l	107	77-116
BROMODICHLOROMETHANE	50.00	54.39	ug/l	109	79-120
BROMOFORM	50.00	53.93	ug/l	108	79-121
BROMOMETHANE	50.00	61.03	ug/l	122	67-122
CARBON DISULFIDE	50.00	49.59	ug/l	99	59-125
CARBON TETRACHLORIDE	50.00	54.80	ug/l	110	74-124
CHLOROBENZENE	50.00	52.92	ug/l	106	75-113
CHLOROETHANE	50.00	56.80	ug/l	114	73-120
CHLOROFORM	50.00	54.19	ug/l	108	75-121
CHLOROMETHANE	50.00	55.40	ug/l	111	60-122
CIS-1,2-DICHLOROETHENE	50.00	54.45	ug/l	109	74-119
CIS-1,3-DICHLOROPROPENE	50,00	58.23	ug/l	116	83-126
CYCLOHEXANE	50.00	51.99	ug/l	104	60-123
DIBROMOCHLOROMETHANE	50.00	54,26	ug/l	109	779-121
DICHLORODIFLUOROMETHANE	50.00	66.57	ug/l	133	55-139
ETHYLBENZENE	50.00	53.32	ug/l	107	70-130
ISOPROPYL BENZENE	50.00	52.05	ug/l	104	74-113
METHYL ACETATE	50.00	49.57	ug/l	99	67-123
METHYL-TERT-BUTYL ETHER	50.00	50.63	ug/l	101	75-120



SC Certification Number: 24110001

Client : AECOM

LCS

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63217

: LCS63217:1

Matrix

: GW/ChemW

Prep Method

	Spike	LCS		LCS	Limits
Parameter	Added	Conc	Units	%REC	%REC
METHYLCYCLOHEXANE	50.00	54.85	ug/l	110	62-123
METHYLENE CHLORIDE	50.00	53.26	ug/l	107	70-120
STYRENE	50.00	54.07	ug/l	108	78-113
TETRACHLOROETHENE	50.00	52.73	ug/l	105	70-120
TOLUENE	50.00	53.00	ug/l	106	75-116
TRANS-1,2-DICHLOROETHENE	50.00	53.59	ug/l	107	73-121
TRANS-1,3-DICHLOROPROPENE	50.00	52.04	ug/l	104	73-114
TRICHLOROETHENE	50.00	53.37	ug/l	107	75-119
TRICHLOROFLUOROMETHANE	50.00	59.27	ug/l	119	71-128
VINYL ACETATE	50.00	51.36	ug/l	103	65-142
VINYL CHLORIDE	50.00	58.40	ug/l	117	64-122
XYLENE (TOTAL)	150.0	158.9	ug/l	106	73-116



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1455 OLD ALABAMA RD.

SUITE 170

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Contact : BRYON DAHLGREN

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QC Batch Report - Batch Sample List

WorkGroup : WG63223 Description: WC/NO3NO2(5)

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091701-01	D12-15-60	1		09/27/2012 1608	LES	2
L12091701-04	D12-14-64 MS/MSD	1		09/27/2012 1610	LES	2
L12091701-05	D12-11-40.5	1		09/27/2012 1618	LES	2
L12091701-06	D12-12-60	1		09/27/2012 1620	LES	2
L12091701-08	D12-16-64	1		09/27/2012 1623	LES	2
L12091701-09	D12-13-47.5	1		09/27/2012 1625	LES	2
L12091701-10	D12-13-37	1		09/27/2012 1628	LES	2
L12091701-11	D12-6-45	1		09/27/2012 1630	LES	2
MB63223:1	Method Blank	1		09/27/2012 1603	LES	1
LCS63223:1	Laboratory Control Spike	1		09/27/2012 1555	LES	1
MS12091701-04:63223	Matrix Spike	1		09/27/2012 1613	LES	2
MS12092401-02:63223	Matrix Spike	1		09/27/2012 1658	LES	2
MSD12091701-04:63223	Matrix Spike Duplicate	1		09/27/2012 1615	LES	2
MSD12092401-02:63223	Matrix Spike Duplicate	1		09/27/2012 1700	LES	2



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QC Batch Report - Method Blanks

WorkGroup: WG63223 : MB63223:1 Blank

Parameter

Result

Qual

Units

Matrix : GW/ChemW Wet Chemistry EPA 353.2 Date/Time: 09/27/2012 1603 Analyst: LES mg/lNITRATE + NITRITE NITROGEN (AS N) 0.0200 U



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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63223

Matrix : GW/ChemW

MS/MSD : MS12091701-04:63223

Prep Method :

MSD12091701-04:63223

Analtyical Method: EPA 353.2

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC	
NITRATE + NITRITE NITROGEN (AS N)	1.00	3.15	4.18	mg/l	103	90-110	
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC	
NITRATE + NITRITE NITROGEN (AS N)	1.00	4.17	mg/l	102	0	10 90-110	

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63223

MS/MSD : MS12092401-02:63223

MSD12092401-02:63223

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	1.85	2.93	mg/l	108	90-110
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	2.93	mg/l	108	0	10 90-110

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63223

Matrix

: GW/ChemW

: LCS63223:1 LCS

Prep Method

:

Analtyical Method: EPA 353.2

Parameter	: 1			Units	LCS %REC	Limits %REC
NITRATE + NITRITE NITROGEN	(AS N)	0.500	0.502	mg/l	100	90-110



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QC Batch Report - Batch Sample List

WorkGroup : WG63254
Description: Alkalinity

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091701-01	D12-15-60	1		09/19/2012 1456	CDC	1.
L12091701-04	D12-14-64 MS/MSD	1		09/19/2012 1534	CDC	1
L12091701-05	D12-11-40.5	1		09/19/2012 1550	CDC	1
L12091701-06	D12-12-60	1		09/19/2012 1555	CDC	1
L12091701-08	D12-16-64	1		09/19/2012 1604	CDC	1
D12091001-01:63254	Duplicate	1		09/19/2012 1053	CDC	1
D12091701-04:63254	Duplicate	1		09/19/2012 1539	CDC	1
MB63254:1	Method Blank	1		09/19/2012 0952	CDC	1
LCS63254:1	Laboratory Control Spike	1		09/19/2012 0959	CDC	1



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QC Batch Report - Method Blanks

WorkGroup: WG63254 Blank : MB63254:1

Parameter

Result

Qua1

RDL

Units

Matrix : GW/ChemW

Wet Chemistry

SM 2320B

Date/Time: 09/19/2012 0952 ALKALINITY, TOTAL

Analyst: CDC

Dilution: 1 U

1.00

mg/1

ENDPOINT PH

1.00 4.16

su



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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63254 LCS

: LCS63254:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Spike Added		Units		Limits %REC	
ALKALINITY, TOTAL	1000	974.9	mg/l	97	90-110	



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QC Batch Report - Sample Duplicates

WorkGroup: WG63254

Duplicate: D12091001-01:63254

Matrix

: GW/ChemW

Prep Method :

Analtyical Method: SM 2320B

Parameter	Sample Conc	DUP Conc	RDL	Units	RPD %RPD
ALKALINITY, TOTAL	0.00	0.00	1.00	mg/l	10

NOTE: Calculation of %RPD is not required for concentrations less than 10X the RDL.



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QC Batch Report - Sample Duplicates

WorkGroup: WG63254

Duplicate: D12091701-04:63254

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter			RDL	Units		RPD
ALKALINITY, TOTAL	69.35	68.34	2.00	mg/l	1	10

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



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QC Batch Report - Batch Sample List

WorkGroup : WG63255 Description: Alkalinity Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091701-09	D12-13-47.5	1.		09/19/2012 1631	CDC	1
L12091701-10	D12-13-37	1		09/19/2012 1642	CDC	1
L12091701-11	D12-6-45	1		09/19/2012 1704	CDC	1
D12091701-11:63255	Duplicate	1		09/19/2012 1716	CDC	1
MB63255:1	Method Blank	1		09/19/2012 1622	CDC	1
LCS63255:1	Laboratory Control Spike	1		09/19/2012 1719	LES	1



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QC Batch Report - Method Blanks

WorkGroup: WG63255
Blank : MB63255:1

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Wet Chemistry

SM 2320B

 Date/Time:
 09/19/2012
 1622
 Analyst:
 CDC
 Dilution:
 1

 ALKALINITY,
 TOTAL
 <</td>
 1.00
 U
 1.00
 mg/l

 ENDPOINT PH
 4.19
 su



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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63255

: LCS63255:1 LCS

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Spike Added	LCS Conc		LCS %REC	
ALKALINITY, TOTAL	1000	974.9	mg/l	97	90-110



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QC Batch Report - Sample Duplicates

WorkGroup: WG63255

Duplicate: D12091701-11:63255

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Sample Conc	DUP Cona	RDL	Units	%RPD	RPD	
ALKALINITY, TOTAL	82.41	81.41	2.00	mg/l	1	10	

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



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QC Batch Report - Batch Sample List

WorkGroup : WG63215
Description: Sulfide

Matrix : GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091701-01	D12-15-60	1		09/17/2012 1524	CDC	1
L12091701-04	D12-14-64 MS/MSD	1		09/17/2012 1525	CDC	1
L12091701-05	D12-11-40.5	1		09/17/2012 1526	CDC	1
L12091701-06	D12-12-60	1		09/17/2012 1527	CDC	1
L12091701-08	D12-16-64	1		09/17/2012 1528	CDC	1
L12091701-09	D12-13-47.5	1		09/17/2012 1529	CDC	1
L12091701-10	D12-13-37	1		09/17/2012 1534	CDC	1
L12091701-11	D12-6-45	1		09/17/2012 1535	CDC	1
MB63215:1	Method Blank	1		09/17/2012 1533	CDC	1
LCS63215:1	Laboratory Control Spike	1		09/17/2012 1519	CDC	1
MS12091701-04:63215	Matrix Spike	1		09/17/2012 1530	CDC	1
MS12091701-11:63215	Matrix Spike	1		09/17/2012 1536	CDC	1
MSD12091701-04:63215	Matrix Spike Duplicate	1		09/17/2012 1531	CDC	1
MSD12091701-11:63215	Matrix Spike Duplicate	1		09/17/2012 1537	CDC	1



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QC Batch Report - Method Blanks

WorkGroup: WG63215 Blank : MB63215:1

Parameter

Units

Matrix : GW/ChemW

Date/Time: 09/17/2012 1533 Analyst: CDC Dilution: 1

mg/1

Wet Chemistry

SM 4500-S2-D

SULFIDE, TOTAL



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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63215

MS/MSD : MS12091701-04:63215

MSD12091701-04:63215

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
SULFIDE, TOTAL	0.500	< 0.0500	0.534	mg/l	107	81-121
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
SULFIDE, TOTAL	0.500	0.517	mg/l	103	3	10 81-121

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63215

MS/MSD : MS12091701-11:63215

MSD12091701-11:63215

Matrix : GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
SULFIDE, TOTAL	0,500	< 0.0500	0.493	mg/1	99	81-121
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
SULFIDE, TOTAL	0.500	0.503	mg/l	101	2	10 81-121

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63215

LCS : LCS63215:1 Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added				Limits %REC	
SULFIDE, TOTAL	0.500	0.511	mg/l	102	90-110	



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QC Batch Report - Batch Sample List

WorkGroup : WG63295
Description: IC-GW

Matrix : GW/ChemW

Prep Method :

Analtyical Method: SW846 9056A

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091701-01	D12-15-60	1		09/26/2012 1616	CDC	1
L12091701-04	D12-14-64 MS/MSD	1		09/26/2012 1646	CDC	1
L12091701-05	D12-11-40.5	1		09/26/2012 1919	CDC	1
L12091701-06	D12-12-60	1		09/26/2012 1950	CDC	1
L12091701-08	D12-16-64	1		09/26/2012 2020	CDC	1
L12091701-09	D12-13-47.5	1		09/26/2012 2051	CDC	1
L12091701-10	D12-13-37	1		09/26/2012 2121	CDC	1
L12091701-11	D12-6-45	1		09/26/2012 2152	CDC	1
MB63295:1	Method Blank	1		09/26/2012 1040	CDC	1
LCS63295:1	Laboratory Control Spike	1		09/26/2012 1111	CDC	1
MS12091701-04:63295	Matrix Spike	1		09/26/2012 1717	CDC	1
MSD12091701-04:63295	Matrix Spike Duplicate	1		09/26/2012 1747	CDC	1



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QC Batch Report - Method Blanks

WorkGroup: WG63295
Blank : MB63295:1

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Wet Chemistry SW846 9056A

Date/Time: 09/26/2012 1040 Analyst: CDC Dilution: 1

SULFATE < 1.00 U 1.00 mg/l



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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63295

MS/MSD : MS12091701-04:63295

MSD12091701-04:63295

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %rec	Limits %REC	
SULFATE	10.00	< 1.00	10.24	mg/l	102	80-120	
Parameter	Spike Added	MSD Conc	Units	MSD %rec	%RPD	Limits %RPD %REC	
SULFATE	10.00	10.21	mg/l	102	0	15 80-120	

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63295

LCS : LCS63295:1

Matrix : GW/ChemW

Prep Method :

Analtyical Method: SW846 9056A

Parameter		LCS Conc	Units	LCS %REC	Limits %REC	
SULFATE	10.00	9.82	mg/l	98	80-120	



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QC Batch Report - Batch Sample List

WorkGroup : WG63209
Description: VO/DIOXANE

Matrix

: WW/STW/SFW

Prep Method

Analtyical Method: SW846 8260B

			PREP	ANALYTICA		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12091701-02	0010F-4-SW	1		09/17/2012 231	PAP	1
L12091701-03	NORTH HEAD WALL - SW	1		09/18/2012 011	PAP	1
L12091701-07	WTN16-0010F-SW	1		09/18/2012 013	PAP	1
L12091701-13	TRIP BLANK #2	1		09/17/2012 174	PAP	1
MB63209:1	Method Blank	1		09/17/2012 165	PAP	1
LCS63209:1	Laboratory Control Spike	1		09/18/2012 023	PAP	1
MS12091701-02:63209	Matrix Spike	1		09/17/2012 234	PAP	1
MSD12091701-02:63209	Matrix Spike Duplicate	1		09/18/2012 001	PAP	1



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QC Batch Report - Surrogates % Recovery

WorkGroup: WG63209

Matrix : WW/STW/SFW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DOXD8
		NE
L12091701~02	09/17/2012 2319	111
L12091701-03	09/18/2012 0110	103
L12091701-07	09/18/2012 0137	109
L12091701-13	09/17/2012 1748	116
MB63209:1	09/17/2012 1653	109
LCS63209:1	09/18/2012 0232	106
MS12091701-02:63209	09/17/2012 2347	109
MSD12091701-02:63209	09/18/2012 0015	107

DOXD8 - 1,4-DIOXANE-D8



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QC Batch Report - Method Blanks

WorkGroup: WG63209 Blank : MB63209:1

Parameter Result Qual RDL Units

Matrix : WW/STW/SFW

Volatile Organics

SW846 8260B

 Date/Time:
 09/17/2012 1653
 Analyst:
 PAP
 Dilution:
 1

 1,4-DIOXANE
 <</td>
 10.0
 U
 10.0
 ug/l

 Surr:
 1,4-DIOXANE-D8
 109 %
 (D-)



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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63209

MS/MSD : MS12091701-02:63209

MSD12091701-02:63209

Matrix

: WW/STW/SFW

Prep Method

Analtyical Method: SW846 8260B

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC	
1,4-DIOXANE	100.0	221.4	331.2	ug/l	110	70-130	
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC	
1,4-DIOXANE	100.0	326.1	ug/l	105	2	20 70-130	

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 10, 2012

Page 71 of 71 Report ID: AK2183

QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63209

LCS

: LCS63209:1

Matrix

: WW/STW/SFW

Prep Method

Analtyical Method: SW846 8260B

Parameter	Spike Added		Units	lcs %rec	Limits %REC
1,4-DIOXANE	100.0	110.3	ug/l	110	70-130



Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RDL	Report Detection Limit	MDL	Method Detection Limit
PQL	Practical Quantitation Limit	DL	Detection Limit
LOQ	Limit of Quantitation	LOD	Limit of Detection
SQL	Sample Quantitation Limit	TIC	Tentatively Identified Compound
C	Degrees Centigrade	F	Degrees Fahrenheit
umhos/cm	micromhos/cm	meq	milliequivalents
su	Standard Units		

mg/l, mg/kg Units of concentration in milligrams per liter for liquids and milligrams per kilogram for solids. Also

referred to as Parts Per Million or "ppm".

ug/l, ug/kg Units of concentration in micrograms per liter for liquids and micrograms per kilograms for solids.

Also referred to as Parts Per Billion or "ppb".

< Less Than
> Greater Than

Solid samples (i.e. soil, sludge, and solid waste) are reported on an as received basis unless otherwise noted.

Data Qualifiers:

B Analyte also detected in the method blank.

C Amendable Cyanide is a negative value due to an unknown interference.

F Surrogate Standard Recovery exceeds the laboratory established acceptance limits.

J The reported result is an estimated value (eg matrix interference observed or concentration outside the quantitation range.

N Non-target analyte. The analyte is TIC (using mass spectrometry).

P Concentration difference between primary and confirmation columns >40%.

Q One or more quality control criteria failed (e.g., LCS recovery, surrogate spike recovery or CCV

U Final concentration is below the detection limit.

* Defined in report comments.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or biological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of the material involved, the test results will be meaningless. If you have any questions regarding the proper techniques of collecting samples, please contact us. However, we cannot be held responsible for sample integrity unless sampling has been performed by a member of our staff.

REPRESENTATION AND LIMITATION OF LIABILITY — The accuracy of all analytical results for samples begins as it is received by the laboratory. Integrity of the sample begins at the time it is placed in the possession of authorized Davis & Floyd, Inc. Laboratories personnel. All other warranties, expressed or implied, are disclaimed. Liability is limited to the cost of the analysis.

CAN S

Chain of Custody Record

Page _____ of ___

Custody Seal: Intact / Broken / Kope	time to reach 4'C. Cus			Multiplier	Z	:	,]			:	5	: -	1	2	7.1-1.1-1.10	D D D D D D D D D D D D D D D D D D D	
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hazards with a	Indicate any known			NO3/NO2 1,4-Dioxane	Sulfide	SO4, Alkalinity	PARAMETERS VOC's	Number of Containers	Matrix Type	Composite Grab	ite ig ection	Composite Sampling Only Sample Collection	├ ───	Date Initiated	ņ	NO IIC	
	or expecte			125 P 3x40 G TFE	125 P	500 P	3x40 G TFE	CONTAINE	(Optional)	6	67.5	12	1 for	Na-h Had for	-		
	d	ervatives (P*)		Required Parameters	Requi				ric Condi	Atmospheric Conditions	·					d By	Collected By
	_ 1	[] Rush (Specify:	s:[]Standard []Ru	Tumaround Requirements: [] Standard	Turnarour					:		ren	Bryon Dahlgren			Mark Hartford	
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		isflovd.com	•	yd.com	@davisfic	oratory	Email: Laboratory@davisfloyd.com						SC	Auriga - Sptbg. SC	Au		•
Office Use Only	934	96, IN-2923, VA-9	E87633, NY - 719 (864) 229-4413	Eab Cermication ID: SC - 24110, NC - 25, NELAP - 816 E. Durst Avenue. Greenwood. SC 29649	ponwned	enue Gr	Durst Av	-db (et u						061576.08	06	Z	AECOM
1		ייי הרחה עו	שמחנה או ככשרפה	י אבו אם	אאאס אר	3	fication II	ah Carti					ā	Project / Site Location	Pro		Client

Matrix Type Definitions 1-Drinking Water 2 - Clean Water 5 - Groundwater 7 - Soil/Sediment 8 - Liquid Studge 9 - Oil 12 - Air (P) Preservative Definitions A - None B - H2SO4 C - HCI D - HNO3 E - Zn Acetate, NaOH F - Filtered G - Na2S2O3

(Note 1) For Discharge Measurements

Davis & Floyd, Inc. FL02_03 (04/10)



October 15, 2012

BRYON DAHLGREN AECOM 1455 OLD ALABAMA RD. **SUITE 170** ROSWELL, GA 30076

Report ID: AK2231

Page 1 of 49

Login Number

:L12092603

Project Number

:61576.08

Description

:AURIGA - SPARTANBURG, SC

Dear Bryon Dahlgren:

We are pleased to provide the enclosed analytical results for the samples received by Davis & Floyd, Inc. on September 26, 2012.

A formal Quality Assurance/Quality Control program is maintained by Davis & Floyd, which is designed to meet or exceed the ISO/IEC 17025, EPA, NELAP or other appropriate regulatory requirements. All analytical analyses for this project met QA/QC criteria and the results are within the 99% confidence interval for each method unless otherwise stated in the footnotes. This report is to be reproduced only in full.

Feel free to contact our Client Services Representative at (864) 229-4413 if further explanation of the analysis is required. Unless other arrangements have been made, samples will be disposed of or returned 14 days from the date of the report. We appreciate the opportunity to provide services to your firm.

Sincerely, DAVIS & FLOYD, INC.

John H. McCord, Jr. Laboratory Manager

This report conatins a TOTAL of ______ pages, including attachments.

Initials:



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Page 2 of 49

Report Date : October 15, 2012 Report ID: AK2231

Certificate of Analysis Report

Sample ID	Client ID	Date Collected	Date Received	
L12092603-01	D12-19-80	09/24/2012 0955	09/26/2012	
L12092603-02	D12-19-63	09/24/2012 1140	09/26/2012	
L12092603-03	D12-22-63	09/24/2012 1505	09/26/2012	
L12092603-04	D12-22-74.5	09/24/2012 1535	09/26/2012	
L12092603-05	D12-17-63	09/25/2012 0845	09/26/2012	
L12092603-06	D12-17-74	09/25/2012 1120	09/26/2012	
L12092603-07	D12-21-63	09/25/2012 1355	09/26/2012	
L12092603-08	D12-18-63	09/25/2012 1710	09/26/2012	
L12092603-09	D12-18-74.5	09/25/2012 1830	09/26/2012	
L12092603-10	D12-22-11	09/24/2012 1725	09/26/2012	
L12092603-11	TRIP BLANK	09/03/2012 0730	09/26/2012	

This data report has been prepared and reviewed in accordance with standard operating procedures. Test results relate only to the sample tested.

Please direct any questions to your Project Manager

Reviewed by

Laboratory Manager



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

Page 3 of 49 Report ID: AK2231

Certificate of Analysis

Client ID: D12-19-80

Sample ID: L12092603-01

Date Collected: 09/24/2012 0955

Date Received : 09/26/2012

Units RDLResult Qua1 Parameter

Matrix : GW/ChemW

Volatile Organics

e/Time: 09/28/2012 1018 Analyst: PA	A <i>P/JVB</i>	j	Dilution:	1		
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5. 0 0	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5,00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5.00	U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5. 0 0	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM	<	5.00	U	5.00	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
CYCLOHEXANE	<	5.00	U	5.00	ug/l	
DIBROMOCHLOROMETHANE	<	5.00	Ū	5.00	ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l	



SW846 9056A

SULFATE

Date/Time: 10/05/2012 0131 Analyst: CDC

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

Page 4 of 49 Report ID: AK2231

Certificate of Analysis

Client ID: **D12-19-80**

Sample ID: L12092603-01

Date Collected: 09/24/2012 0955

Date Received : 09/26/2012

Dilution: 1 1.00 U

Sample ID: HI203.	2005-01			Date Mooding	05,,	
Parameter		Resul	t Qual	. RDL	Units	
		F 0	0 11	F 00	/1	
ETHYLBENZENE		< 5.0		5.00 5.00	ug/l ug/l	
ISOPROPYL BENZENE		< 5.0			2.	
METHYL ACETATE		< 10.		10.0	ug/l	
METHYL-TERT-BUTYL ETHER		< 5.0		5.00	ug/l	
METHYLCYCLOHEXANE		< 5.0		5.00	ug/l	
METHYLENE CHLORIDE		< 5.0		5.00	ug/1	
STYRENE		< 5.0		5.00	ug/l	
TETRACHLOROETHENE		< 5.0		5.00	ug/l	
TOLUENE		< 5.0		5.00	ug/l	
TRANS-1,2-DICHLOROETHENE		< 5.0		5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE		< 5.0		5.00	ug/l	
TRICHLOROETHENE		< 5.0		5.00	ug/l	
TRICHLOROFLUOROMETHANE		< 5.0		5.00	ug/1	
VINYL ACETATE		< 10.		10.0	ug/1	
VINYL CHLORIDE		< 10.	U 0	10.0	ug/l	
XYLENE (TOTAL)		< 5.0	0 U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		13	0 용	(74-140)		
Surr: BROMOFLUOROBENZENE		12	4 왕	(77-133)		
Surr: TOLUENE-D8		1.3	0 %	(77-131)		
et Chemistry						
PA 353.2						
Date/Time: 10/02/2012 1514	Analyst: LES		Diluti	ion: 1		
NITRATE + NITRITE NITROGEN (< 0.020	0 U	0.0200	mg/l	
M 2320B						
Date/Time: 10/03/2012 1403	Analyst: CDC		Diluti	ion: 1		
ALKALINITY, TOTAL		78.	4	2.00	mg/l	
ENDPOINT PH		4.4	8		su	
M 4500-S2-D						
Date/Time: 09/27/2012 1410	Analyst: CDC		Diluti	ion: 1		
SULFIDE, TOTAL		< 0.050		0.0500	mg/l	



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD. SUITE 170

ROSWELL, GA 30076

Report Date : October 15, 2012

Contact : BRYON DAHLGREN

Page 5 of 49 Report ID: AK2231

Certificate of Analysis

Client ID: D12-19-63 Sample ID: L12092603-02 Date Collected: 09/24/2012 1140

Date Received : 09/26/2012

RDL

Parameter

Result

Qual

Units

Matrix : GW/ChemW

Volatile Organics

Time: 09/28/2012 1054 Analyst	; PAP/JVB	D	ilution:	1	.,
.,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
L,1,2-TRICHLORO-1,2,2-TRIFLUOROETHA	NE <	10.0	U	10.0	ug/l
,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	Ü	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
L,2-DIBROMO-3-CHLOROPROPANE	<	5,00	Ü	5.00	ug/l
,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
,2-DICHLOROBENZENE	<	5,00	U	5.00	ug/l
,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
,2-DICHLOROPROPANE	<	5.00	Ŭ	5.00	ug/l
L,3-DICHLOROBENZENE	<	5.00	Ŭ	5.00	ug/l
L,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
1-METHYL-2-PENTANONE	<	5.00	U	5,00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	Ŭ	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	Ŭ	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	Ŭ	5.00	ug/l
CHLOROETHANE	<	10.0	Ŭ	10.0	ug/l
CHLOROFORM		8.28		5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	ŭ	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

Page 6 of 49 Report ID: AK2231

Certificate of Analysis

Client ID: D12-19-63 Sample ID: L12092603-02 Date Collected: 09/24/2012 1140

Date Received : 09/26/2012

Parameter			Result	Qual	RDL	Units
		•				
ETHYLBENZENE		<	5.00	U	5,00	ug/l
ISOPROPYL BENZENE		<	5.00	U	5.00	ug/l
METHYL ACETATE		<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER		<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE		<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE		<	5.00	U	5.00	ug/l
STYRENE		<	5,00	U	5.00	ug/l
TETRACHLOROETHENE		<	5.00	U	5,00	ug/l
TOLUENE		<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE		<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE		<	5.00	U	5.00	ug/l
TRICHLOROETHENE		<	5.00	υ	5.00	ug/l
TRICHLOROFLUOROMETHANE		<	5.00	U	5.00	ug/l
VINYL ACETATE		<	10.0	U	10.0	ug/l
VINYL CHLORIDE		<	10.0	U	10.0	ug/l
XYLENE (TOTAL)		<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4			102	용	(74-140)	
Surr: BROMOFLUOROBENZENE			96	용	(77-133)	
Surr: TOLUENE-D8			102	용	(77-131)	
Wet Chemistry						
EPA 353.2						
Date/Time: 10/02/2012 1517	Analyst: LE	s		Dilution:	1	
NITRATE + NITRITE NITROGEN	(AS N)		0.0269	***************************************	0.0200	mg/l
SM 2320B						
Date/Time: 10/03/2012 1410	Analyst: CD	C		Dilution:	1	
ALKALINITY, TOTAL			43.2		2.00	mg/l
ENDPOINT PH			4.46			su
SM 4500-S2-D						
Date/Time: 09/27/2012 1412	Analyst: CD	C		Dilution:	1	
SULFIDE, TOTAL		<	0.0500	U	0.0500	mg/l
SW846 9056A						
Date/Time: 10/05/2012 0202	Analyst: CD	C		Dilution:	1	
SULFATE		<	1,00	U	1.00	mg/l



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD. SUITE 170

ROSWELL, GA 30076

Report Date : October 15, 2012

Contact : BRYON DAHLGREN

Page 7 of 49 Report ID: AK2231

Certificate of Analysis

Client ID: **D12-22-63**

Date Collected: 09/24/2012 1505

Sample ID: L12092603-03

Date Received : 09/26/2012

Units RDLResult Qua1 Parameter

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/28/2012 1122	Analyst: PAP/JVB	E	ilution: 1		
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFI	JUOROETHANE <	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5,00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5,00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5,00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5,00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	Ū	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5,00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	Ū	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5,00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	υ	5,00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

Date/Time: 10/05/2012 0232

SULFATE

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 15, 2012

Page 8 of 49 Report ID: AK2231

Certificate of Analysis

Client ID: D12-22-63 Sample ID: L12092603-03

Date Collected: 09/24/2012 1505

Date Received : 09/26/2012

Parameter		Result	Qual	RDL	Units	
					13	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	Ω	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5,00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5,00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		116	%	(74-140)		
Surr: BROMOFLUOROBENZENE		109	용	(77-133)		
Surr: TOLUENE-D8		112	응	(77-131)		
Chemistry						
353.2						
te/Time: 10/02/2012 1519	Analyst: LES		Dilution			
NITRATE + NITRITE NITROGEN	(AS N)	0.206		0.0200	mg/l	
2320B						
te/Time: 10/03/2012 1415	Analyst: CDC		Dilution			
ALKALINITY, TOTAL		24.6		1.00	mg/l	
ENDPOINT PH		4.49			su	
1500-S2-D						
te/Time: 09/27/2012 1412	Analyst: CDC		Dilution	1: 1		
SULFIDE, TOTAL	<	0.0500	Ū	0.0500	mg/l	
16 9056A						

Analyst: CDC

Dilution: 1

mg/1

1.00



SC Certification Number: 24110001

Client : AECOM

Contact : BRYON DAHLGREN

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

Report Date : October 15, 2012

ROSWELL, GA 30076

Page 9 of 49 Report ID: AK2231

Certificate of Analysis

Client ID: D12-22-74.5

Sample ID: L12092603-04

Date Collected: 09/24/2012 1535

Date Received : 09/26/2012

RDL

Parameter

Result

Qual

Units

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/28/2012 1149 Analyst: P	AP/JVB	Dilutio	n: 1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
1,1,1-TRICHLOROETHANE	<	5.00 U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00 U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5,00 U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00 U	5.00	ug/l
1,1-DICHLOROETHENE	<	5,00 U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00 U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00 U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00 U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00 U	5,00	ug/l
2-BUTANONE	<	10.0 U	10.0	ug/l
2-HEXANONE	<	10.0 U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00 U	5.00	ug/l
ACETONE		10.7	10.0	ug/l
BENZENE	<	5,00 U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00 U	5.00	ug/l
BROMOFORM	<	5.00 U	5.00	ug/l
BROMOMETHANE	<	10.0 U	10.0	ug/l
CARBON DISULFIDE	<	5.00 U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00 U	5.00	ug/l
CHLOROBENZENE	<	5.00 U	5.00	ug/l
CHLOROETHANE	<	10.0 U	10.0	ug/l
CHLOROFORM	<	5.00 U	5.00	ug/l
CHLOROMETHANE	<	10.0 U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00 U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00 U	5.00	ug/l
CYCLOHEXANE	<	5.00 U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00 U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00 U	5.00	ug/l



SULFATE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Project Number: 61576.08

Report Date : October 15, 2012

Page 10 of 49 Report ID: AK2231 Contact : BRYON DAHLGREN

Certificate of Analysis

Client ID: D12-22-74.5 Sample ID: L12092603-04 Date Collected: 09/24/2012 1535

Date Received : 09/26/2012

Parameter		Result	Qua1	RDL	Units	
	<	5.00	Ū	5.00	ug/l	
ETHYLBENZENE		5.00	τī	5.00	ug/1	
ISOPROPYL BENZENE	<	10.0	υ	10.0	ug/1 ug/1	
METHYL ACETATE	<	5.00	U	5.00	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	ū	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	Ū	5.00	ug/1 ug/l	
METHYLENE CHLORIDE	<		Ü	5.00	ug/l	
STYRENE	<	5.00	_	5.00	ug/1 ug/l	
TETRACHLOROETHENE	<	5.00	Ŭ			
TOLUENE	<	5,00	Ŭ	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	Ü	5.00	ug/1	
TRANS-1,3-DICHLOROPROPENE	<	5.00	υ 	5.00	ug/l	
TRICHLOROETHENE	<	5.00	Ŭ	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	Ü	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/1	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	บ	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		132		(74-140)		
Surr: BROMOFLUOROBENZENE		122	ક	(77-133)		
Surr: TOLUENE-D8		127	ે	(77-131)		
: Chemistry						
A 353.2						
Pate/Time: 10/02/2012 1522	Analyst: LES		Dilution	: 1	*******************************	
NITRATE + NITRITE NITROGEN	(AS N)	0.982		0.0200	mg/l	
2320B						
Pate/Time: 10/03/2012 1425	Analyst: CDC		Dilution	: 1	***************************************	
ALKALINITY, TOTAL		39.7		1.00	mg/l	
ENDPOINT PH		4.48			su	
4500-S2-D						
Date/Time: 09/27/2012 1413	Analyst: CDC		Dilution	: 1		
SULFIDE, TOTAL	<	0.0500		0.0500	mg/l	
346 9056A						
Date/Time: 10/05/2012 0303	Analyst: CDC		Dilution	: 1		
***************************************				1 00	/1	

1.00 U



SC Certification Number: 24110001

Client : AECOM

Project

Project Number: 61576.08

1455 OLD ALABAMA RD. SUITE 170

ROSWELL, GA 30076

ELL, GA 30076 Repo

Contact : BRYON DAHLGREN

Report Date : October 15, 2012
Page 11 of 49 Report ID: AK2231

Certificate of Analysis

Client ID: **D12-17-63**

Sample ID: L12092603-05

Date Collected: 09/25/2012 0845

Date Received : 09/26/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

/Time: 09/28/2012 1217 Analyst: PA	P/JVB	D	ilution:	: 1	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5,00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5,00	U	5,00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5,00	U	5,00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SULFATE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Report Date : October 15, 2012

Contact : BRYON DAHLGREN

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Certificate of Analysis

Client ID: D12-17-63

Sample ID: L12092603-05

Date Collected: 09/25/2012 0845

mg/1

1.00

Date Received : 09/26/2012

Parameter		Result	Qual	RDL	Units	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5,00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4	1	132	용	(74-140)		
Surr: BROMOFLUOROBENZENE		124	용	(77-133)		
Surr: TOLUENE-D8		127	%	(77-131)		
et Chemistry						
PA 353.2						
Date/Time: 10/02/2012 1524	Analyst: LES	*************************	Dilution	n: 1		
NITRATE + NITRITE NITROGEN	(AS N)	0.759		0.0200	mg/l	
M 2320B						
Date/Time: 10/03/2012 1430	Analyst: CDC	*************	Dilution	n: 1		
ALKALINITY, TOTAL		23.6		1.00	mg/l	
ENDPOINT PH		4.50			su	
1 4500-S2-D						
Date/Time: 09/27/2012 1414	Analyst: CDC		Dilutio:	n: 1		
SULFIDE, TOTAL	<	0.0500	U	0.0500	mg/l	
W846 9056A						
Date/Time: 10/05/2012 0333	Analyst: CDC		Dilution	n: 1		
					/ 3	

1,00 U



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

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Certificate of Analysis

Client ID: **D12-17-74** Sample ID: L12092603-06 Date Collected: 09/25/2012 1120

Date Received : 09/26/2012

Parameter

Resu1t Qual RDL

Units

Matrix : GW/ChemW

Volatile Organics

ate/Time: 09/28/2012 1245 Analyst: PA	AP/JVB	I	oilution:	. 1		
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5.00	U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM	<	5.00	U	5.00	ug/l	
CHLOROMETHANE	<	10.0	Ŭ	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
CYCLOHEXANE	<	5.00	U	5.00	ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5,00	ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l	



SULFATE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

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Certificate of Analysis

Client ID: **D12-17-74**Sample ID: L12092603-06

Date Collected: 09/25/2012 1120

mg/1

Date Received : 09/26/2012

Parameter		Result	Qual	RDL	Units	
		5 00		F 00	/1	
ETHYLBENZENE	<	5.00	Ü	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	υ	5.00	ug/1	
METHYL ACETATE	<	10.0	υ 	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	Ū	5.00	ug/1	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/1	
METHYLENE CHLORIDE	<	5.00	Ü	5.00	ug/l	
STYRENE	<	5.00	Ü	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	Ŭ	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	Ū	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		130	용	(74-140)		
Surr: BROMOFLUOROBENZENE		118	용	(77-133)		
Surr: TOLUENE-D8		123	양	(77-131)		
t Chemistry						
PA 353.2						
Date/Time: 10/02/2012 1527	Analyst: LES		Dilution	: 1		*****
NITRATE + NITRITE NITROGEN	(AS N)	0.182		0.0200	mg/l	
1 2320B						
Date/Time: 10/03/2012 1436	Analyst: CDC		Dilution	; 1		
ALKALINITY, TOTAL		35.2		1.00	mg/l	
ENDPOINT PH		4.49			su	
1 4500-S2-D						
Date/Time: 09/27/2012 1415	Analyst: CDC		Dilution	: 1	***************************************	
SULFIDE, TOTAL	<	0.0500	U	0.0500	mg/1	
V846 9056A						
Date/Time: 10/05/2012 0404	Analyst: CDC		Dilution	: 1		********
		7 00	**	1 00	ma /1	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

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Certificate of Analysis

Client ID: **D12-21-63**Sample ID: L12092603-07

Date Collected: 09/25/2012 1355

Date Received : 09/26/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

Time: 09/28/2012 1313 Analy	st: PAP/JVB		ilution	: 1	***************************************
L,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROET	HANE <	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5,00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5,00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	Ū	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SW846 9056A

SULFATE

Date/Time: 10/05/2012 0434

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

Page 16 of 49 Report ID: AK2231

Certificate of Analysis

Client ID: **D12-21-63**Sample ID: L12092603-07

Date Collected: 09/25/2012 1355

Date Received : 09/26/2012

Parameter		Result	Qua1	RDL	Units
ETHYLBENZENE	<	5,00	Ū	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE		10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5,00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5,00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5,00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4	!	133	음	(74-140)	
Surr: BROMOFLUOROBENZENE		121	음	(77-133)	
Surr: TOLUENE-D8		126	웅	(77-131)	
t Chemistry					
A 353.2					
Date/Time: 10/02/2012 1529	Analyst: LES		Dilution	1: 1	
NITRATE + NITRITE NITROGEN	(AS N)	0.445		0.0200	mg/1
2320B					
Date/Time: 10/03/2012 1448	Analyst: CDC		Dilution	1: 1	*******************************
ALKALINITY, TOTAL		23,1		1.00	mg/l
ENDPOINT PH		4.49			su
4500-S2-D					
Date/Time: 09/27/2012 1416	Analyst: CDC		Dilution	1: 1	
SULFIDE, TOTAL	<	0.0500	Ū	0.0500	mg/l

Dilution: 1

1.00

mg/1

1.00 U



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 15, 2012

Page 17 of 49 Report ID: AK2231

Certificate of Analysis

Client ID: D12-18-63

Sample ID: L12092603-08

Date Collected: 09/25/2012 1710

Date Received : 09/26/2012

Parameter

Result

Qua1

 \mathtt{RDL}

Units

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/28/2012 1341	Analyst: PAP/JVB	I	ilution:	1	
1,1,1-TRICHLOROETHANE	<	5,00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUC	OROETHANE <	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5,00	ug/l
1,4-DICHLOROBENZENE	<	5,00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5,00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

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Certificate of Analysis

Client ID: D12-18-63 Sample ID: L12092603-08 Date Collected: 09/25/2012 1710

Date Received : 09/26/2012

### PA 353.2 Date/Time: 10/02/2012 1532 Analyst: LES Dilution: 1 NITRATE + NITRITE NITROGEN (AS N) 0.123 0.0200 mg/l M 2320B Date/Time: 10/03/2012 1524 Analyst: CDC Dilution: 1 ALKALINITY, TOTAL 32.2 1.00 mg/l ENDPOINT PH 4.48 su M 4500-S2-D Date/Time: 09/27/2012 1417 Analyst: CDC Dilution: 1 SULFIDE, TOTAL < 0.0500 U 0.0500 mg/l	Parameter			Result	Qual	RDL	Units
ISOEROPYL BENZENE							
METHYL ACETATE	ETHYLBENZENE		<	5.00	U		•
METHYL-TERT-BUTYL ETHER	ISOPROPYL BENZENE		<	5.00	U	5.00	- :
METHYLCYCLOHEXANE	METHYL ACETATE		<	10.0	Ū	10.0	= :
METHYLENE CHLORIDE	METHYL-TERT-BUTYL ETHER		<	5.00	U	5.00	= '
STYRENE	METHYLCYCLOHEXANE		<	5.00	U	5.00	ug/l
TETRACHIOROETHENE	METHYLENE CHLORIDE		<	5.00	U	5.00	ug/1
TOLUENE	STYRENE		<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	TETRACHLOROETHENE		<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	TOLUENE		<	5.00	υ	5.00	ug/l
TRICHLOROETHENE	TRANS-1,2-DICHLOROETHENE		<	5.00	ប	5.00	ug/l
TRICHLOROFLUOROMETHANE	TRANS-1,3-DICHLOROPROPENE		<	5.00	υ	5.00	ug/l
VINYL ACETATE	TRICHLOROETHENE		<	5.00	Ū	5.00	ug/l
VINYL CHLORIDE	TRICHLOROFLUOROMETHANE		<	5.00	υ	5.00	ug/1
XYLENE (TOTAL) < 5.00 U 5.00 ug/l Surr: 1,2-DICHLOROETHANE-D4 120 % (74-140) Surr: BROMOFLUOROBENZENE 111 % (77-133) Surr: TOLUENE-D8 114 % (77-131) et Chemistry PA 353.2 Date/Time: 10/02/2012 1532 Analyst: LES Dilution: 1 NITRATE + NITRITE NITROGEN (AS N) 0.123 0.0200 mg/l M 2320B Date/Time: 10/03/2012 1524 Analyst: CDC Dilution: 1 ALKALINITY, TOTAL 32.2 1.00 mg/l ENDPOINT PH 4.48 su M 4500-S2-D Date/Time: 09/27/2012 1417 Analyst: CDC Dilution: 1 SULFIDE, TOTAL < 0.0500 U 0.0500 mg/l W846 9056A Date/Time: 10/05/2012 0505 Analyst: CDC Dilution: 1	VINYL ACETATE		<	10.0	U	10.0	ug/l
Surr: 1,2-DICHLOROETHANE-D4 120 % (74-140) Surr: BROMOFLUOROBENZENE 111 % (77-133) Surr: TOLUENE-D8 114 % (77-131) et Chemistry PA 353.2 Date/Time: 10/02/2012 1532 Analyst: LES Dilution: 1 NITRATE + NITRITE NITROGEN (AS N) 0.123 0.0200 mg/l M 2320B Date/Time: 10/03/2012 1524 Analyst: CDC Dilution: 1 ALKALINITY, TOTAL 32.2 1.00 mg/l ENDPOINT PH 4.48 su M 4500-S2-D Date/Time: 09/27/2012 1417 Analyst: CDC Dilution: 1 SULFIDE, TOTAL < 0.0500 U 0.0500 mg/l W846 9056A Date/Time: 10/05/2012 0505 Analyst: CDC Dilution: 1	VINYL CHLORIDE		<	10.0	Ŭ	10.0	ug/l
Surr: BROMOFLUOROBENZENE Surr: TOLUENE-D8 111 % (77-133) Surr: TOLUENE-D8 114 % (77-131) et Chemistry PA 353.2 Date/Time: 10/02/2012 1532	XYLENE (TOTAL)		<	5.00	υ	5.00	ug/l
et Chemistry PA 353.2 Date/Time: 10/02/2012 1532	Surr: 1,2-DICHLOROETHANE-D4			120	용	(74-140)	
et Chemistry PA 353.2 Date/Time: 10/02/2012 1532	Surr: BROMOFLUOROBENZENE			111	솸	(77-133)	
### PA 353.2 Date/Time: 10/02/2012 1532 Analyst: LES Dilution: 1 NITRATE + NITRITE NITROGEN (AS N) 0.123 0.0200 mg/l M 2320B Date/Time: 10/03/2012 1524 Analyst: CDC Dilution: 1 ALKALINITY, TOTAL 32.2 1.00 mg/l ENDPOINT PH 4.48 su M 4500-S2-D Date/Time: 09/27/2012 1417 Analyst: CDC Dilution: 1 SULFIDE, TOTAL < 0.0500 U 0.0500 mg/l W846 9056A Date/Time: 10/05/2012 0505 Analyst: CDC Dilution: 1 Contract Dilution: 1 Cont	Surr: TOLUENE-D8			114	응	(77-131)	
Date/Time: 10/02/2012 1532	Wet Chemistry						
NITRATE + NITRITE NITROGEN (AS N) 0.123 0.0200 mg/l M 2320B Date/Time: 10/03/2012 1524 Analyst: CDC Dilution: 1 ALKALINITY, TOTAL ENDPOINT PH 4.48 Su M 4500-S2-D Date/Time: 09/27/2012 1417 Analyst: CDC Dilution: 1 SULFIDE, TOTAL 0.0500 U 0.0500 mg/l W846 9056A Date/Time: 10/05/2012 0505 Analyst: CDC Dilution: 1	EPA 353.2						
M 2320B Date/Time: 10/03/2012 1524 Analyst: CDC Dilution: 1 ALKALINITY, TOTAL 32.2 1.00 mg/l ENDPOINT PH 4.48 su M 4500-S2-D Date/Time: 09/27/2012 1417 Analyst: CDC Dilution: 1 SULFIDE, TOTAL < 0.0500 U 0.0500 mg/l W846 9056A Date/Time: 10/05/2012 0505 Analyst: CDC Dilution: 1	Date/Time: 10/02/2012 1532	Analyst: LES	•		Dilution: 1		
Date/Time: 10/03/2012 1524 Analyst: CDC Dilution: 1 ALKALINITY, TOTAL 32.2 1.00 mg/1 ENDPOINT PH 4.48 su M 4500-S2-D Date/Time: 09/27/2012 1417 Analyst: CDC Dilution: 1 SULFIDE, TOTAL < 0.0500 U 0.0500 mg/1 W846 9056A Date/Time: 10/05/2012 0505 Analyst: CDC Dilution: 1	NITRATE + NITRITE NITROGEN	(AS N)		0.123		0.0200	mg/l
ALKALINITY, TOTAL 32.2 1.00 mg/l ENDPOINT PH 4.48 su M 4500-S2-D Date/Time: 09/27/2012 1417 Analyst: CDC Dilution: 1 SULFIDE, TOTAL < 0.0500 U 0.0500 mg/l W846 9056A Date/Time: 10/05/2012 0505 Analyst: CDC Dilution: 1	SM 2320B						
ENDPOINT PH 4.48 su M 4500-S2-D Date/Time: 09/27/2012 1417 Analyst: CDC Dilution: 1 SULFIDE, TOTAL < 0.0500 U 0.0500 mg/l W846 9056A Date/Time: 10/05/2012 0505 Analyst: CDC Dilution: 1	Date/Time: 10/03/2012 1524	Analyst: CDC	•		Dilution: 1		
M 4500-S2-D Date/Time: 09/27/2012 1417	ALKALINITY, TOTAL			32.2		1.00	mg/l
Date/Time: 09/27/2012 1417	ENDPOINT PH			4.48			su
SULFIDE, TOTAL < 0.0500 U 0.0500 mg/l W846 9056A Date/Time: 10/05/2012 0505 Analyst: CDC Dilution: 1	SM 4500-S2-D						
SULFIDE, TOTAL < 0.0500 U 0.0500 mg/l W846 9056A Date/Time: 10/05/2012 0505 Analyst: CDC Dilution: 1	Date/Time: 09/27/2012 1417	Analyst: CDC	,		Dilution: 1		
Date/Time: 10/05/2012 0505 Analyst: CDC Dilution: 1	SULFIDE, TOTAL		<		U	0.0500	mg/l
2000 11000 1000 1000 1000 1000 1000 100	SW846 9056A						
SULFATE < 1.00 U 1.00 mg/l	Date/Time: 10/05/2012 0505	Analyst: CDC	,		Dilution: 1		
	SULFATE		<	1.00	Ū	1.00	mg/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

Page 19 of 49 Report ID: AK2231

Certificate of Analysis

Client ID: D12-18-74.5

Sample ID: L12092603-09

Date Collected: 09/25/2012 1830

Date Received : 09/26/2012

Units RDLResult Qual Parameter

Matrix : GW/ChemW

Volatile Organics

ate/Time: 09/28/2012 1409 Analys	t: PAP/JVB	I	ilution:	. 1	***************************************	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETH	ANE <	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5,00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5,00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5.00	U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5,00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM	<	5.00	U	5.00	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
CYCLOHEXANE	<	5.00	U	5.00	ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l	



SW846 9056A

SULFATE

Date/Time: 10/05/2012 0535

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 15, 2012

Page 20 of 49 Report ID: AK2231

Certificate of Analysis

Client ID: D12-18-74.5

Sample ID: L12092603-09

Date Collected: 09/25/2012 1830

Date Received : 09/26/2012

Parameter		Result	Qual	RDL	Units	
			-			
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5,00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		129	용	(74-140)		
Surr: BROMOFLUOROBENZENE		116	용	(77-133)		
Surr: TOLUENE-D8		121	용	(77-131)		
t Chemistry						
A 353.2						
Date/Time: 10/02/2012 1534	Analyst: LES		Dilution	n: 1		
NITRATE + NITRITE NITROGEN	(AS N)	0.345		0.0200	mg/l	
2320B						
Date/Time: 10/03/2012 1530	Analyst: CDC		Dilution	n: 1		
ALKALINITY, TOTAL		21.6		1.00	mg/l	
ENDPOINT PH		4.46			su	
4500-S2-D						
Date/Time: 09/27/2012 1418	Analyst: CDC	• • • • • • • • • • • • • • • • • • • •	Dilutio	n: 1		
SULFIDE, TOTAL	<	0.0500	Ü	0.0500	mg/l	

Analyst: CDC

Dilution: 1

1.00 U



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 15, 2012

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Certificate of Analysis

Client ID: **D12-22-11**

Sample ID: L12092603-10

Date Collected: 09/24/2012 1725

Date Received : 09/26/2012

Parameter

Result Qual RDL

Units

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/28/2012 1437	Analyst: PAP/JVB	Dilution:	: 1	
CHLOROFORM	<	5.00 U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		135 %	(74-140)	
Surr: BROMOFLUOROBENZENE		123 %	(77-133)	
Surr: TOLUENE-D8		127 %	(77-131)	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

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Units

Certificate of Analysis

Client ID: TRIP BLANK Sample ID: L12092603-11 Date Collected: 09/03/2012 0730

Date Received : 09/26/2012

RDL

Result Qual Parameter

Matrix : GW/ChemW

Volatile Organics

Date/Time: 09/28/2012 1533 Analyst:	PAP/JVB	D	ilution: 1	1	
1,1,1-TRICHLOROETHANE	<	5.00	Ū	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHAN	E <	10.0	Ŭ	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5,00	Ŭ	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	Ŭ	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5,00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	Ŭ	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	Ŭ	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

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Certificate of Analysis

Client ID: TRIP BLANK Sample ID: L12092603-11 Date Collected: 09/03/2012 0730

Date Received : 09/26/2012

Parameter		Result	Qual	RDL	Units
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5,00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
/INYL CHLORIDE	<	10.0	U	10.0	ug/l
(YLENE (TOTAL)	<	5.00	U	5,00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		136	용	(74-140)	
Surr: BROMOFLUOROBENZENE		122	ે	(77-133)	
Surr: TOLUENE-D8		126	용	(77-131)	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

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QC Summary Data



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

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QC Batch Report - Batch Sample List

WorkGroup : WG63304 Description: VO/8260/TCL Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12092603-01	D12-19-80	1		09/28/2012 1018	PAP/JVB	. 1
L12092603-02	D12-19-63	1		09/28/2012 1054	PAP/JVB	1
L12092603-03	D12-22-63	1		09/28/2012 1122	PAP/JVB	1
L12092603-04	D12-22-74.5	1		09/28/2012 1149	PAP/JVB	1
L12092603-05	D12-17-63	1		09/28/2012 1217	PAP/JVB	1
L12092603-06	D12-17-74	1		09/28/2012 1245	PAP/JVB	1
L12092603-07	D12-21-63	1		09/28/2012 1313	PAP/JVB	1
L12092603-08	D12-18-63	1		09/28/2012 1341	PAP/JVB	1
L12092603-09	D12-18-74.5	1		09/28/2012 1409	PAP/JVB	1
L12092603-10	D12-22-11	1		09/28/2012 1437	PAP/JVB	1
L12092603-11	TRIP BLANK	1		09/28/2012 1533	PAP/JVB	1
MB63304:1	Method Blank	1		09/28/2012 0946	PAP/JVB	1
LCS63304:1	Laboratory Control Spike	1		09/28/2012 1657	PAP/JVB	1
MS12092603-01:63304	Matrix Spike	1		09/28/2012 1601	PAP/JVB	1
MSD12092603-01:63304	Matrix Spike Duplicate	1		09/28/2012 1629	PAP/JVB	1



SC Certification Number: 24110001

Client : ARCOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

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QC Batch Report - Surrogates % Recovery

WorkGroup: WG63304

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DCA	BPB	TOL
		74-140	77-133	77-131
L12092603-01	09/28/2012 1018	130	124	130
L12092603-02	09/28/2012 1054	102	96	102
L12092603-03	09/28/2012 1122	116	109	112
L12092603-04	09/28/2012 1149	132	122	127
L12092603-05	09/28/2012 1217	132	124	127
L12092603-06	09/28/2012 1245	130	118	123
L12092603-07	09/28/2012 1313	133	121	126
L12092603-08	09/28/2012 1341	120	111	114
L12092603-09	09/28/2012 1409	129	116	121
L12092603-10	09/28/2012 1437	135	123	127
L12092603-11	09/28/2012 1533	136	122	126
MB63304:1	09/28/2012 0946	131	126	129
LCS63304:1	09/28/2012 1657	129	120	123
MS12092603-01:63304	09/28/2012 1601	132	125	128
MSD12092603-01:63304	09/28/2012 1629	128	122	125

DCA - 1,2-DICHLOROETHANE-D4

BFB - BROMOFLUOROBENZENE

TOL - TOLUENE-D8



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63304 Blank : MB63304:1

Units RDL Result Qual Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 09/28/2012 0946	Analyst: PAP/JVB	D	ilution: 1		~~~~~~
1,1,1-TRICHLOROETHANE	<	5.00	U	5,00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	Ū	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFL	UOROETHANE <	10.0	Ū	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	Ū	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	Ū	5,00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	Ū	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5,00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	Ū	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	Ū	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	ū	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	Ū	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Method Blanks

WorkGroup: WG63304 Blank : MB63304:1

Parameter		Result	Qual	RDL	Units
CIS-1,3-DICHLOROPROPENE	<	5.00	Ū	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	Ū	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	Ū	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	Ū	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	Ü	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		131	ક	(74-140)	
Surr: BROMOFLUOROBENZENE		126	웅	(77-133)	
Surr: TOLUENE-D8		129	용	(77-131)	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63304

MS/MSD : MS12092603-01:63304

MSD12092603-01:63304

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

		2 1	MS		MS	Limits
2000	Spike Added	Sample Conc	Conc	Units	%REC	%REC
Parameter	50.00	< 5.00	56.23	ug/l	112	75-121
1,1,1-TRICHLOROETHANE	50.00	< 5.00	54.73	ug/1	109	78-114
1,1,2,2-TETRACHLOROETHANE		< 10.00	54.73	ug/l	108	64-130
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00		52,71	ug/1	105	78-113
1,1,2-TRICHLOROETHANE	50.00	< 5.00	54.39	ug/1 ug/l	109	76-116
1,1-DICHLOROETHANE	50.00	< 5.00		ug/1 ug/l	116	71-127
1,1-DICHLOROETHENE	50.00	< 5.00	58.02		116	75-112
1,2,3-TRICHLOROBENZENE	50.00	< 5.00	58.11	ug/1	108	76-114
1,2,4-TRICHLOROBENZENE	50.00	< 5.00	53.79	ug/l		73-124
1,2-DIBROMO-3-CHLOROPROPANE	50.00	< 5.00	56.28	ug/l	113	
1,2-DIBROMOETHANE	50.00	< 5.00	53.48	ug/l	107	79-114
1,2-DICHLOROBENZENE	50.00	< 5.00	47.02	ug/l	94	76-109
1,2-DICHLOROETHANE	50.00	< 5.00	56.13	ug/l	112	74-122
1,2-DICHLOROPROPANE	50.00	< 5.00	53.46	ug/l	107	79-113
1,3-DICHLOROBENZENE	50.00	< 5.00	47.44	ug/l	95	69-118
1,4-DICHLOROBENZENE	50.00	< 5.00	52.50	ug/l	105	74-108
2-BUTANONE	50.00	< 10.00	59.33	ug/l	119	68-134
2-HEXANONE	50.00	< 10.00	55.78	ug/l	112	70-133
4-METHYL-2-PENTANONE	50.00	< 5.00	56.15	ug/l	112	69-135
ACETONE	50.00	< 10.00	63.11	ug/l	126	64-149
BENZENE	50.00	< 5.00	54.00	ug/l	108	77-114
BROMODICHLOROMETHANE	50.00	< 5.00	54.58	ug/l	109	76-123
BROMOFORM	50.00	< 5.00	55.91	ug/l	112	74-124
BROMOMETHANE	50.00	< 10.00	56.56	ug/l	113	64-121
CARBON DISULFIDE	50.00	< 5.00	52.79	ug/l	106	59-124
CARBON TETRACHLORIDE	50.00	< 5.00	57.53	ug/l	115	72-126
CHLOROBENZENE	50.00	< 5.00	46,02	ug/l	92	74-113
CHLOROETHANE	50.00	< 10.00	60.10	ug/l	120	71-121
CHLOROFORM	50.00	< 5.00	55.39	ug/l	111	76-119
CHLOROMETHANE	50.00	< 10.00	49.45	ug/l	99	59-123
CIS-1,2-DICHLOROETHENE	50.00	< 5.00	59.28	ug/l	119	74-118
CIS-1,3-DICHLOROPROPENE	50.00	< 5.00	57.09	ug/l	114	83-125
CYCLOHEXANE	50.00	< 5.00	51.20	ug/l	102	59-126
DIBROMOCHLOROMETHANE	50.00	< 5.00	53.76	ug/l	108	77-121
DICHLORODIFLUOROMETHANE	50.00	< 5.00	47.33	ug/l	95	53-141
ETHYLBENZENE	50.00	< 5.00	52.56	ug/l	105	70-130
ISOPROPYL BENZENE	50.00	< 5.00	47.74	ug/l	95	74-114
METHYL ACETATE	50.00	< 10.00	53.36	ug/l	107	68-122
METHYL-TERT-BUTYL ETHER	50.00	< 5.00	49.97	ug/l	100	74-119



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63304

MS/MSD : MS12092603-01:63304

MSD12092603-01:63304

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	Sample	MS		MS	Limits
Parameter	Added	Conc	Conc	Units	%REC	%REC
METHYLCYCLOHEXANE	50.00	< 5.00	52.44	ug/l	105	61-126
METHYLENE CHLORIDE	50.00	< 5.00	52.59	ug/l	105	71-115
STYRENE	50.00	< 5.00	52.92	ug/l	106	75-116
TETRACHLOROETHENE	50.00	< 5.00	53.30	ug/l	107	69-121
TOLUENE	50.00	< 5.00	51.98	ug/l	104	74-115
TRANS-1,2-DICHLOROETHENE	50.00	< 5.00	54.94	ug/l	110	74-119
TRANS-1,3-DICHLOROPROPENE	50.00	< 5.00	51.39	ug/l	103	73-112
TRICHLOROETHENE	50.00	< 5.00	52.89	ug/l	106	74-120
TRICHLOROFLUOROMETHANE	50.00	< 5.00	60.68	ug/l	121	70-134
VINYL ACETATE	50.00	< 10.00	54.04	ug/l	108	59-146
VINYL CHLORIDE	50,00	< 10.00	50.17	ug/l	100	63-124
XYLENE (TOTAL)	150.0	< 5.00	145.9	ug/l	97	73-116

				0.0000000000000000000000000000000000000	000000000000000000000000000000000000000	040000000000000000000000000000000000000	
	Spike	MSD		MSD		Limit	
Parameter	Added	Conc	Units	%REC	%RPD	%RPD	6.000.000000000000000000000000000000000
1,1,1-TRICHLOROETHANE	50.00	54.38	ug/l	109	3	16	75-121
1,1,2,2-TETRACHLOROETHANE	50.00	53.71	ug/l	107	2	18	78-114
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	50.71	ug/l	101	7	18	64-130
1,1,2-TRICHLOROETHANE	50.00	52.45	ug/l	105	0	14	78-113
1,1-DICHLOROETHANE	50.00	53.21	ug/l	106	2	15	76-116
1,1-DICHLOROETHENE	50.00	54.63	ug/l	109	6	16	71-127
1,2,3-TRICHLOROBENZENE	50,00	57.61	ug/l	115	1	20	75-112
1,2,4-TRICHLOROBENZENE	50.00	52.43	ug/l	105	3	18	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	57.46	ug/l	115	2	20	73-124
1,2-DIBROMOETHANE	50.00	53.39	ug/l	107	0	16	79-114
1,2-DICHLOROBENZENE	50.00	45.72	ug/l	91	3	15	76-109
1,2-DICHLOROETHANE	50.00	53.96	ug/l	108	4	16	74~122
1,2-DICHLOROPROPANE	50.00	53.00	ug/l	106	1	15	79-113
1,3-DICHLOROBENZENE	50.00	45.61	ug/l	91	4	17	69-118
1,4-DICHLOROBENZENE	50.00	51.00	ug/l	102	3	16	74-108
2-BUTANONE	50.00	58.18	ug/l	116	2	20	68-134
2-HEXANONE	50.00	56.84	ug/l	114	2	20	70-133
4-METHYL-2-PENTANONE	50.00	56.31	ug/l	113	0	19	69-135
ACETONE	50.00	62.42	ug/l	125	1	23	64-149
BENZENE	50.00	52.85	ug/l	106	2	15	77-114
BROMODICHLOROMETHANE	50.00	53.77	ug/l	108	1	16	76-123
BROMOFORM	50.00	55.64	ug/l	111	0	17	74-124
BROMOMETHANE	50.00	52.69	ug/l	105	7	22	64-121



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63304

MS/MSD : MS12092603-01:63304

MSD12092603-01:63304

Matrix

Prep Method

Analtyical Method: SW846 8260B

	Spike	MSD		MSD		Limi	ts
Parameter	- Added	Conc	Units	%REC	%RPD	%RPD	%REC
CARBON DISULFIDE	50.00	50.64	ug/l	101	4	21	59-124
CARBON TETRACHLORIDE	50.00	56.60	ug/l	113	2	18	72-126
CHLOROBENZENE	50.00	45.92	ug/l	92	0	15	74-113
CHLOROETHANE	50.00	54.68	ug/l	109	9	17	71-121
CHLOROFORM	50.00	54.08	ug/l	108	2	14	76-119
CHLOROMETHANE	50.00	47.46	ug/l	95	4	18	59-123
CIS-1,2-DICHLOROETHENE	50.00	57.72	ug/l	115	3, ,	15	74-118
CIS-1,3-DICHLOROPROPENE	50.00	56.06	ug/l	112	2	16	83-125
CYCLOHEXANE	50.00	48.80	ug/l	98	5	17	59-126
DIBROMOCHLOROMETHANE	50.00	53,92	ug/l	108	0	16	77-121
DICHLORODIFLUOROMETHANE	50.00	44.54	ug/l	89	6	20	53-141
ETHYLBENZENE	50.00	51.67	ug/l	103	2	20	70-130
ISOPROPYL BENZENE	50.00	46.19	ug/l	92	3	17	74-114
METHYL ACETATE	50.00	53.19	ug/l	106	0	19	68-122
METHYL-TERT-BUTYL ETHER	50.00	50.17	ug/l	100	0	16	74-119
METHYLCYCLOHEXANE	50.00	50.94	ug/l	102	3	16	61-126
METHYLENE CHLORIDE	50.00	51.28	ug/l	103	3	17	71-115
STYRENE	50.00	52.83	ug/l	106	0	17	75-116
TETRACHLOROETHENE	50.00	52.08	ug/l	104	2	16	69-121
TOLUENE	50.00	51.46	ug/l	103	1	15	74-115
TRANS-1,2-DICHLOROETHENE	50,00	53.85	ug/l	108	2	16	74-119
TRANS-1,3-DICHLOROPROPENE	50.00	50.83	ug/l	102	1	16	73-112
TRICHLOROETHENE	50.00	52.56	ug/l	105	1	15	74-120
TRICHLOROFLUOROMETHANE	50.00	55.74	ug/l	111	8	18	70-134
VINYL ACETATE	50.00	53.29	ug/l	107	1	19	59-146
VINYL CHLORIDE	50.00	48.22	ug/l	96	4	16	63-124
XYLENE (TOTAL)	150.0	144.7	ug/l	96	1	17	73-116

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63304 LCS: LCS63304:1 Matrix

Prep Method

: GW/ChemW

Analtyical Method: SW846 8260B

				200000000000000000000000000000000000000		555555555555555
	Spike	LCS		LCS	Limits	
Parameter	Added	Conc	Units	%REC	%REC	
1,1,1-TRICHLOROETHANE	50.00	52.06	ug/l	104	76-120	
1,1,2,2-TETRACHLOROETHANE	50.00	53,30	ug/l	107	78-116	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	47.69	ug/l	95	65-125	
1,1,2-TRICHLOROETHANE	50.00	52.57	ug/l	105	78-117	
1,1-DICHLOROETHANE	50.00	52.17	ug/l	104	75-117	
1,1-DICHLOROETHENE	50.00	51.93	ug/l	104	72-125	
1,2,3-TRICHLOROBENZENE	50.00	55.09	ug/l	110	75-113	
1,2,4-TRICHLOROBENZENE	50.00	50.59	ug/l	101	76-114	
1,2-DIBROMO-3-CHLOROPROPANE	50.00	56.82	ug/l	114	77-122	
1,2-DIBROMOETHANE	50.00	52.93	ug/l	106	80-116	
1,2-DICHLOROBENZENE	50.00	44.51	ug/l	89	76-110	
1,2-DICHLOROETHANE	50.00	53.64	ug/l	107	75-121	
1,2-DICHLOROPROPANE	50.00	52.60	ug/l	105	79-115	
1,3-DICHLOROBENZENE	50.00	43.64	ug/l	87	74-113	
1,4-DICHLOROBENZENE	50.00	48.67	ug/l	97	74-109	
2-BUTANONE	50.00	56.44	ug/l	113	72-129	
2-HEXANONE	50.00	55.38	ug/l	111	73-132	
4-METHYL-2-PENTANONE	50.00	55.61	ug/l	111	75-131	
ACETONE	50.00	58.97	ug/l	118	70-138	
BENZENE	50.00	51.46	ug/l	103	77-116	
BROMODICHLOROMETHANE	50.00	53.40	ug/l	107	79-120	
BROMOFORM	50.00	54.62	ug/l	109	79-121	
BROMOMETHANE	50.00	50.96	ug/l	102	67-122	
CARBON DISULFIDE	50.00	47.78	ug/l	96	59-125	
CARBON TETRACHLORIDE	50.00	53.27	ug/l	107	74-124	
CHLOROBENZENE	50.00	44.21	ug/l	88	75-113	
CHLOROETHANE	50.00	53.96	ug/l	108	73-120	
CHLOROFORM	50.00	53.29	ug/l	107	75-121	
CHLOROMETHANE	50.00	45.28	ug/l	91	60-122	
CIS-1,2-DICHLOROETHENE	50.00	53.99	ug/l	108	74-119	
CIS-1,3-DICHLOROPROPENE	50.00	56.01	ug/l	112	83-126	
CYCLOHEXANE	50.00	46.24	ug/l	92	60-123	
DIBROMOCHLOROMETHANE	50.00	53.84	ug/l	108	779-121	
DICHLORODIFLUOROMETHANE	50.00	42.33	ug/l	85	55-139	
ETHYLBENZENE	50.00	49.22	ug/l	98	70-130	
ISOPROPYL BENZENE	50.00	44.02	ug/l	88	74-113	
METHYL ACETATE	50.00	52.36	ug/l	105	67-123	
METHYL-TERT-BUTYL ETHER	50,00	49,99	ug/l	100	75-120	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 15, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63304 LCS

: LCS63304:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

		2011/08/04/02/02/03/03/03/03/03	000000000000000000000000000000000000000		
	Spike	LCS		rcs	Limits
Parameter	Added	Conc	Units	%REC	%REC
METHYLCYCLOHEXANE	50.00	48.10	ug/l	96	62-123
METHYLENE CHLORIDE	50.00	51.95	ug/l	104	70-120
STYRENE	50.00	51.01	ug/l	102	78-113
TETRACHLOROETHENE	50.00	49.51	ug/l	99	70-120
TOLUENE	50.00	50.10	ug/l	100	75-116
TRANS-1,2-DICHLOROETHENE	50.00	52.77	ug/l	106	73-121
TRANS-1,3-DICHLOROPROPENE	50.00	49.98	ug/l	100	73-114
TRICHLOROETHENE	50.00	50.57	ug/l	101	75-119
TRICHLOROFLUOROMETHANE	50.00	52.18	ug/l	104	71-128
VINYL ACETATE	50.00	50.94	ug/l	102	65-142
VINYL CHLORIDE	50.00	46.22	ug/l	92	64-122
XYLENE (TOTAL)	150.0	139.6	ug/l	93	73-116



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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QC Batch Report - Batch Sample List

WorkGroup : WG63331 Description: WC/NO3NO2 Matrix

Prep Method

Analtyical Method: EPA 353.2

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12092603-01	D12-19-80	1		10/02/2012 1514	LES	1
L12092603-02	D12-19-63	1		10/02/2012 1517	LES	1
L12092603-03	D12-22-63	1		10/02/2012 1519	LES	=
L12092603-04	D12-22-74.5	1		10/02/2012 1522	LES	:
L12092603-05	D12-17-63	1		10/02/2012 1524	LES	
L12092603-06	D12-17-74	1		10/02/2012 1527	LES	
L12092603-07	D12-21-63	1		10/02/2012 1529	LES	
L12092603-08	D12-18-63	1		10/02/2012 1532	LES	
L12092603-09	D12-18-74.5	1		10/02/2012 1534	LES	
MB63331:1	Method Blank	1		10/02/2012 1509	LES	
LCS63331:1	Laboratory Control Spike	1		10/02/2012 1502	LES	
MS12092603-09:63331	Matrix Spike	1		10/02/2012 1547	LES	
MSD12092603-09:63331	Matrix Spike Duplicate	1		10/02/2012 1550	LES	



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1455 OLD ALABAMA RD.

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Contact : BRYON DAHLGREN

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QC Batch Report - Method Blanks

WorkGroup: WG63331 Blank : MB63331:1

Units Result Qual Parameter

Matrix : GW/ChemW

Wet Chemistry

EPA 353.2

Date/Time: 10/02/2012 1509 Analyst: LES Dilution: 1

mg/10.0200 0.0200 U NITRATE + NITRITE NITROGEN (AS N)



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: AECOM

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63331

Matrix

: GW/ChemW

MS/MSD

: MS12092603-09:63331

MSD12092603-09:63331

Prep Method

Analtyical Method: EPA 353.2

MS Limits MS Spike Sample %REC Added Conc Conc Units %REC Parameter. 90-110 0.345 mg/l1,05 NITRATE + NITRITE NITROGEN (AS N) 0.500

Limits Spike MSD MSD %RPD %REC Units %REC %RPD Added Conc 90-110 mg/l105 0.869 NITRATE + NITRITE NITROGEN (AS N) 0.500

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63331

: LCS63331:1 LCS

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	X254454400001000000000	Units	LCS %REC	Limits %RBC
NITRATE + NITRITE NITROGEN (AS N)	0.500	0.518	mg/l	104	90-110



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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Batch Sample List

WorkGroup : WG63365

Description: Alkalinity-GW

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

			PREP	ANALYI	CICAL		
Sample ID	Client ID	Run#	Date Time	Date	Time	Analyst	Dilution
L12092603-01	D12-19-80	1		10/03/2012	1403	CDC	1
L12092603-02	D12-19-63	1		10/03/2012	1410	CDC	1
L12092603-03	D12-22-63	1		10/03/2012	1415	CDC	1
L12092603-04	D12-22-74.5	1		10/03/2012	1425	CDC	1
L12092603-05	D12-17-63	1		10/03/2012	1430	CDC	1
L12092603-06	D12-17-74	1		10/03/2012	1436	CDC	1
L12092603-07	D12-21-63	1		10/03/2012	1448	CDC	3
L12092603-08	D12-18-63	1		10/03/2012	1524	CDC	1
L12092603-09	D12-18-74.5	1		10/03/2012	1530	CDC	1
D12092603-01:63365	Duplicate	1		10/03/2012	1535	CDC	1
MB63365:1	Method Blank	1		10/03/2012	1331	CDC]
LCS63365:1	Laboratory Control Spike	1		10/03/2012	1336	CDC	1



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QC Batch Report - Method Blanks

WorkGroup: WG63365 : MB63365:1 Blank

Parameter

Result

Qua1

Matrix : GW/ChemW

Wet Chemistry

SM 2320B

Date/Time: 10/03/2012 1331 ALKALINITY, TOTAL

Analyst: CDC

Dilution: 1

mg/1

ENDPOINT PH

4.16

1.00 U

su



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Client : AECOM

1455 OLD ALABAMA RD.

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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63365 LCS

: LCS63365:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Spike Added	LCS Conc	Units	LCS %REC	Limits %REC	
ALKALINITY, TOTAL	1000	1025	mg/l	103	90-110	



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QC Batch Report - Sample Duplicates

WorkGroup: WG63365

Duplicate: D12092603-01:63365

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Sample Conc	DUP Conc	RDL	Units	%RPD	RPD
ALKALINITY, TOTAL	78.39	77.39	2.00	mg/l	1	10

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



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QC Batch Report - Batch Sample List

WorkGroup : WG63335 Description: Sulfide Matrix : GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

:

			PREP	ANALYT	ICAL		
Sample ID	Client ID	Run#	Date Time	Date	Time	Analyst	Dilution
L12092603-01	D12-19-80	1		09/27/2012	1410	CDC	1
L12092603-02	D12-19-63	1		09/27/2012	1412	CDC	1
L12092603-03	D12-22-63	1		09/27/2012	1412	CDC	1
L12092603-04	D12-22-74.5	1		09/27/2012	1413	CDC	1
L12092603-05	D12-17-63	1		09/27/2012	1414	CDC	1
L12092603-06	D12-17-74	1		09/27/2012	1415	CDC	1
L12092603-07	D12-21-63	1		09/27/2012	1416	CDC	1
L12092603-08	D12-18-63	1		09/27/2012	1417	CDC	1
L12092603-09	D12-18-74.5	1		09/27/2012	1418	CDC	1
MB63335:1	Method Blank	1		09/27/2012	1421	CDC	=
LCS63335:1	Laboratory Control Spike	1		09/27/2012	1409	CDC	=
MS12092603-09:63335	Matrix Spike	1		09/27/2012	1419	CDC	:
MSD12092603-09:63335	Matrix Spike Duplicate	1		09/27/2012	1420	CDC	:



SC Certification Number: 24110001

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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Method Blanks

WorkGroup: WG63335
Blank : MB63335:1

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Wet Chemistry

SM 4500-S2-D

Date/Time: 09/27/2012 1421

Analyst: CDC Dilution: 1

SULFIDE, TOTAL < 0.0500 U 0.0500 mg/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

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Contact : BRYON DAHLGREN

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63335

MS/MSD : MS12092603-09:63335

MSD12092603-09:63335

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
SULFIDE, TOTAL	0.500 <	0.0500	0.586	mg/l	117	81-121
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
SULFIDE, TOTAL	0.500	0.581	mg/l	116	1	10 81-121

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

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Contact : BRYON DAHLGREN

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63335 LCS

: LCS63335:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	LCS Conc			Limits %REC
SULFIDE, TOTAL	0.500	0.482	mg/l	96	90-110



SC Certification Number: 24110001

Client : AECOM

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Contact : BRYON DAHLGREN

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QC Batch Report - Batch Sample List

WorkGroup : WG63377 Description: IC-GW

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
				10/05/2012 0121	CDC	1
L12092603-01	D12-19-80	1		10/05/2012 0131		-
L12092603-02	D12-19-63	1		10/05/2012 0202	CDC	1
L12092603-03	D12-22-63	1		10/05/2012 0232	CDC	1
L12092603-04	D12-22-74.5	1		10/05/2012 0303	CDC	1
L12092603-05	D12-17-63	1		10/05/2012 0333	CDC	1
L12092603-06	D12-17-74	1		10/05/2012 0404	CDC	1
L12092603-07	D12-21-63	1		10/05/2012 0434	CDC	1
L12092603-08	D12-18-63	1		10/05/2012 0505	CDC	1
L12092603-09	D12-18-74.5	1		10/05/2012 0535	CDC	1
MB63377:1	Method Blank	1		10/04/2012 1617	CDC	1
LCS63377:1	Laboratory Control Spike	1		10/04/2012 1647	CDC	1
MS12092603-09:63377	Matrix Spike	1		10/05/2012 0707	CDC	1
MSD12092603-09:63377	Matrix Spike Duplicate	1		10/05/2012 0737	CDC	1



SC Certification Number: 24110001

Client : AECOM

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Contact : BRYON DAHLGREN

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QC Batch Report - Method Blanks

WorkGroup: WG63377 : MB63377:1 Blank

Parameter

Result

Qua1

RDL

Units

Matrix : GW/ChemW

Wet Chemistry

SW846 9056A

Date/Time: 10/04/2012 1617 Analyst: CDC

mg/l

SULFATE



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63377

MS/MSD : MS12092603-09:63377

MSD12092603-09:63377

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
SULFATE	10.00	< 1.00	10.37	mg/l	104	80-120
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	%RPD %REC
SULFATE	10.00	10.27	mg/l	103	1	15 80-120

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

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Contact : BRYON DAHLGREN

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63377

LCS : LCS63377:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

Parameter	Spike Added	LCS Conc	Units	TICS	Limits %REC
SULFATE	10.00	9.82	mg/l	98	80-120



Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RDL	Report Detection Limit	MDL	Method Detection Limit
PQL	Practical Quantitation Limit	DL	Detection Limit
LOQ	Limit of Quantitation	LOD	Limit of Detection
SQL	Sample Quantitation Limit	TIC	Tentatively Identified Compound
C	Degrees Centigrade	F	Degrees Fahrenheit
umhos/cm	micromhos/cm	meq	milliequivalents
su	Standard Units	•	·

mg/l, mg/kg Units of cond

Units of concentration in milligrams per liter for liquids and milligrams per kilogram for solids. Also

referred to as Parts Per Million or "ppm".

ug/l, ug/kg Units of concentration in micrograms per liter for liquids and micrograms per kilograms for solids.

Also referred to as Parts Per Billion or "ppb".

< Less Than
> Greater Than

Solid samples (i.e. soil, sludge, and solid waste) are reported on an as received basis unless otherwise noted.

Data Qualifiers:

B Analyte also detected in the method blank.

C Amendable Cyanide is a negative value due to an unknown interference.

F Surrogate Standard Recovery exceeds the laboratory established acceptance limits.

J The reported result is an estimated value (eg matrix interference observed or concentration outside the quantitation range.

N Non-target analyte. The analyte is TIC (using mass spectrometry).

P Concentration difference between primary and confirmation columns >40%.

Q One or more quality control criteria failed (e.g., LCS recovery, surrogate spike recovery or CCV

U Final concentration is below the detection limit.

* Defined in report comments.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or biological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of the material involved, the test results will be meaningless. If you have any questions regarding the proper techniques of collecting samples, please contact us. However, we cannot be held responsible for sample integrity unless sampling has been performed by a member of our staff.

<u>REPRESENTATION AND LIMITATION OF LIABILITY</u> – The accuracy of all analytical results for samples begins as it is received by the laboratory. Integrity of the sample begins at the time it is placed in the possession of authorized Davis & Floyd, Inc. Laboratories personnel. All other warranties, expressed or implied, are disclaimed. Liability is limited to the cost of the analysis.

RION OF

Chain of Custody Record

Page _____ of ____

Matrix Type Definitions 1-Drinking Water 2- Clean Water 5- Groundwater 7- Soil/Sediment 8-1 inui	Comments	9-	6.1 Com 6.25.12. 1034 June 10.	Relinquished By	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	9-24-12 177.5 X K	-18-742 SXC 87-	1710 X 5	212-21-63 9-25-12 1355 X51	012-17-74 92511120 ×5	012-17-63 PIGUSY X5 4	who were the total to the total	012-22-945 9-242 1535 X 5	D12-22-63 5-2-12-1505 × 5	012-19-63 9-2412 1/40 x 5 6	Fir 2 100 x 2	9-24-2 955	Sample Description Time Date Time Type	Date Initiated S.	NOTICE: (Optional)	A	Mark Hartford Bryon Dahlgren	Contact Report To Copy To	Aurica - Sptbg. SC	
inuid Studge 9 - Oil 12 - Air (Note 1) For Discharge Measu	Sample Chamber Flow Measurement (Note 1) Time Temp. at Harvest Beginning	The Keegween Laboratory By (Col.) 9.	2 120S	Polingriched By	<i>y E</i>		ER NU	UMBE CONTRACTOR	S S S S S S S S S S S S S S S S S S S		ЛРLE	S CON WARTH	$\overline{}$	T		2	3 1	AAEB	Number of Container PARAMETERS VOC's SO4, Alkalinity Sulfide NO3/NO2 1,4-Dioxane Chlur of Urit	2007AIN 3x40 G TFE 500 P 125 P 125 P 3x40 G TFE	IERs	Tun	nents.	Internet : www.	816 E. Durst Avenue. Greenwood. SC 29649 (864) 229-4413 Fax: (864) 229-7119
ren –	di Vi all all	9.36.10 1305	1 1	Time	622	Chloroform 10	60	086	70	90	90.5	0 0000	1000	03	60	11		HOT Comments Fraction	Indicate any known hazards with	a "X".	cted Special instructions		(Specify Level: 1 2 3 4) PO / Quote Number TC		229-7119 Laboratory Work Request

Matrix Type Definitions 1-Drinking Water 2-Clean Water 5-Groundwater 7-Soil/Sediment 8-Liquid Sludge 9-Oil 12-Air (P) Preservative Definitions A-None B-H2SO4 C-HCI D-HNO3 E-Zn Acetate, NaOH F-Filtered G-Na2S2O3

(Note 1) For Discharge Measurements

Immediate Delivery: Yes / (\log \)
Inditative adequate | Immediate Delivery: Yes / (\log \)
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October 29, 2012

BRYON DAHLGREN AECOM 1455 OLD ALABAMA RD. SUITE 170 ROSWELL, GA 30076

Report ID: AK2349 Page 1 of 55

Login Number

:L12092401

Project Number

:61576.08

Description

:AURIGA - SPARTANBURG, SC

Dear Bryon Dahlgren:

We are pleased to provide the enclosed analytical results for the samples received by Davis & Floyd, Inc. on September 24, 2012.

A formal Quality Assurance/Quality Control program is maintained by Davis & Floyd, which is designed to meet or exceed the ISO/IEC 17025, EPA, NELAP or other appropriate regulatory requirements. All analytical analyses for this project met QA/QC criteria and the results are within the 99% confidence interval for each method unless otherwise stated in the footnotes. This report is to be reproduced only in full.

Feel free to contact our Client Services Representative at (864) 229-4413 if further explanation of the analysis is required. Unless other arrangements have been made, samples will be disposed of or returned 14 days from the date of the report. We appreciate the opportunity to provide services to your firm.

Sincerely

DAVIS & FLOXD, INC.

John H. McCord, Jr. Laboratory Manager

This report conatins a TOTAL of

pages, including attachments.

Initials



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 29, 2012

Page 2 of 55 Report ID: AK2349

Certificate of Analysis Report

Sample ID	Client ID	Date Collected	Date Received	
			00/04/0070	
L12092401-01	D12-23-59	09/19/2012 1700	09/24/2012	
L12092401-02	D12-9-47 MS/MSD	09/20/2012 1025	09/24/2012	
L12092401-03	D12-9-47A	09/20/2012 1025	09/24/2012	
L12092401-04	D12-7-33	09/20/2012 1155	09/24/2012	
L12092401-05	D12-4-58	09/20/2012 1420	09/24/2012	
L12092401-06	D12-3-53	09/20/2012 1625	09/24/2012	
L12092401-07	D12-1-72.5	09/21/2012 0941	09/24/2012	
L12092401-08	D12-2-37.5	09/21/2012 1320	09/24/2012	
L12092401-09	D12-20-59	09/21/2012 1550	09/24/2012	
L12092401-10	TRIP BLANK #1	09/03/2012 0730	09/24/2012	
L12092401-11	TRIP BLANK #2	09/03/2012 0730	09/24/2012	

This data report has been prepared and reviewed in accordance with standard operating procedures. Test results relate only to the sample tested.

Please direct any questions to your Project Manager

Reviewed by

John H. McCord, Jr.

Laboratory Manager



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 29, 2012

Page 3 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: **D12-23-59**

Sample ID: L12092401-01

Date Collected: 09/19/2012 1700

Date Received : 09/24/2012

Parameter

Result

RDL

Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 09/24/2012 1627 Analys	st: PAP/JVB	D	ilution:	1		,
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROET	HANE <	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1.1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5.00	U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM	<	5.00	U	5.00	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5,00	U	5.00	ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
CYCLOHEXANE	<	5.00	U	5.00	ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l	
D10201.0D21 1100						



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 4 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: D12-23-59 Sample ID: L12092401-01 Date Collected: 09/19/2012 1700 Date Received : 09/24/2012

Parameter		Result	Qual	RDL	Units	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10,0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	Ū	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,2 DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5,00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		102	ક	(74-140)		
Surr: BROMOFLUOROBENZENE		96	%	(77-133)		
		98	용	(77-131)		
Surr: TOLUENE-D8						

Dilution: 1

Wet Chemistry

EPA 353.2

Date/Time: 09/2	7/2012 1710	Analyst:	LES		Dilution:	1			
***************************************	TRITE NITROGEN	(AS N)		0.317			0.0200	mg/l	
SM 2320B									
Date/Time: 09/2	6/2012 1622	Analyst:	CDC		Dilution:				
ALKALINITY,			.,	88.4			2.00	mg/l	
ENDPOINT PH				4.48				su	
SM 4500-S2-D					Dilution:	7			
Date/Time: 09/2	4/2012 1115	Analyst:	CDC		Dilucion:				
SULFIDE, TO	AL		<	0.0500	U		0.0500	mg/l	
SW846 9056A									
Date/Time: 09/2	7/2012 0327	Analyst:	CDC		Dilution:			4-	ではなからい くちゅうはい (a to
SULFATE		again () - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	***********	1,16			1.00	mg/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 5 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: D12-9-47 MS/MSD

Sample ID: L12092401-02

Date Collected: 09/20/2012 1025

Date Received : 09/24/2012

Units RDLResult Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 09/24/2012 1524 Analyst: I	PAP/JVB	Dilution:	1	
1,1,1-TRICHLOROETHANE	<	5.00 U		ug/l
1,1,2,2-TETRACHLOROETHANE	<	5,00 U		ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U		ug/l
1,1,2-TRICHLOROETHANE	<	5.00 U		ug/l
1,1-DICHLOROETHANE	<	5,00 U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00 U	5,00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00	ug/l
1,2-DIBROMOETHANE	<	5,00 U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00 Ŭ	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00 U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00 U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
2-BUTANONE	<	10.0 U	10.0	ug/l
2-HEXANONE	<	10.0 U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00 U	5.00	ug/l
ACETONE	<	10.0 U	10.0	ug/l
BENZENE	<	5.00 U		ug/l
BROMODICHLOROMETHANE	<	5.00 U		ug/l
BROMOFORM	<	5.00 U	5.00	ug/l
BROMOMETHANE	<	10.0 U	10.0	ug/l
CARBON DISULFIDE	<	5.00 U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00 U	5.00	ug/l
CHLOROBENZENE	<	5.00 U	5.00	ug/l
CHLOROETHANE	<	10.0 U	10.0	ug/l
CHLOROFORM		17.1	5.00	ug/l
CHLOROMETHANE	<	10.0 U	10.0	ug/l
CIS-1,2-DICHLOROETHENE		33.9	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5,00 U	5,00	ug/l
CYCLOHEXANE	<	5.00 U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00 U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00 U	5.00	ug/l
D10,120,000 N1 N1				



SULFATE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 6 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: D12-9-47 MS/MSD

Date Collected: 09/20/2012 1025

Date Received : 09/24/2012 Sample ID: L12092401-02

Parameter			Result	Qu	a1	RDL	Units	
ETHYLBENZENE		<	5.00	U		5.00	ug/l	
ISOPROPYL BENZENE		<	5.00	U		5.00	ug/l	
METHYL ACETATE		<	10.0	U		10.0	ug/l	
METHYL-TERT-BUTYL ETHER		<	< 5.00	U		5.00	ug/l	
METHYLCYCLOHEXANE			5.00	U		5.00	ug/l	
METHYLENE CHLORIDE		<	< 5.00	U		5.00	ug/l	
STYRENE			< 5.00	U		5,00	ug/l	
TETRACHLOROETHENE			5.00) U		5.00	ug/l	
TOLUENE			< 5.00	U		5.00	ug/l	
TRANS-1,2-DICHLOROETHENE			< 5.00) U		5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE			< 5.00	U (5.00	ug/l	
TRICHLOROETHENE			< 5.00	U (5.00	ug/l	
TRICHLOROFLUOROMETHANE			< 5.00	U (5.00	ug/l	
VINYL ACETATE			< 10.0	U (10.0	ug/l	
VINYL CHLORIDE			< 10.0	U		10.0	ug/l	
XYLENE (TOTAL)			< 5.00	U (5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4	!		103	1 %	(74	-140)		
Surr: BROMOFLUOROBENZENE			98	3 %	(77-	-133)		
Surr: TOLUENE-D8			91	8 °8	(77-	-131)		
et Chemistry								
PA 353.2								
Date/Time: 09/27/2012 1655	Analyst:	LES		Dil	ution: 2		***************************************	
NITRATE + NITRITE NITROGEN	(AS N)		1.8	5	0	.0400	mg/l	
M 2320B								
Date/Time: 09/26/2012 1629	Analyst:	CDC		Dil	ution: 1		***************************************	
ALKALINITY, TOTAL			43.	2		2.00	mg/l	
ENDPOINT PH			4.4	9			su	
EM 4500-S2-D								
Date/Time: 09/24/2012 1116	Analyst:	CDC		Dil	ution: 1			
SULFIDE, TOTAL			< 0.050	0 U	0	.0500	mg/l	
SW846 9056A								
Date/Time: 09/27/2012 0358	Analyst:	CDC	***************************************	Dil	ution: 1	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		1,1,1,1
			1.0			1 00	mcr / 1	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 7 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: D12-9-47A

Sample ID: L12092401-03

Date Collected: 09/20/2012 1025

Date Received : 09/24/2012

RDL Units Result Qual Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

260B Time: 09/24/2012 1655 Analyst: P	AP/JVB	Dilution:	: 1	
,1,1-TRICHLOROETHANE	<	5.00 U	5.00	ug/l
,1,2,2-TETRACHLOROETHANE	<	5.00 U	5.00	ug/l
,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U	10.0	ug/l
,1,2-TRICHLOROETHANE	<	5,00 U	5.00	ug/l
,1-DICHLOROETHANE	<	5,00 U	5.00	ug/l
,1-DICHLOROETHENE	<	5.00 U	5.00	ug/l
,2,3-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l
,2,4-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l
,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5,00	ug/l
, 2-DIBROMOETHANE	<	5.00 U	5.00	ug/l
, 2-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
, 2-DICHLOROETHANE	<	5.00 U	5.00	ug/l
2-DICHLOROPROPANE	<	5.00 U	5.00	ug/l
, 3-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
, 4-DICHLOROBENZENE	<	5.00 U	5,00	ug/l
-BUTANONE	<	10.0 U	10.0	ug/l
- HEXANONE	<	10.0 U	10.0	ug/l
-METHYL-2-PENTANONE	<	5.00 U	5.00	ug/l
ACETONE	<	10.0 U	10.0	ug/l
ENZENE	<	5.00 U	5.00	ug/l
ROMODICHLOROMETHANE	<	5.00 U	5.00	ug/l
BROMOFORM	<	5.00 U	5.00	ug/l
BROMOMETHANE	<	10,0 U	10.0	ug/l
CARBON DISULFIDE	<	5.00 U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00 U	5.00	ug/l
CHLOROBENZENE	<	5.00 U	5.00	ug/l
HLOROETHANE	<	10.0 U	10.0	ug/l
CHLOROFORM		17.1	5.00	ug/l
HLOROMETHANE	<	10.0 U	10.0	ug/l
IS-1,2-DICHLOROETHENE		33.5	5.00	ug/l
IS-1,3-DICHLOROPROPENE	<	5.00 U	5.00	ug/l
YCLOHEXANE	<	5.00 U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00 U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00 U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 8 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: D12-9-47A Sample ID: L12092401-03 Date Collected: 09/20/2012 1025 Date Received : 09/24/2012

Parameter	_	Result	Qual	RDL	Units
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		101	랑	(74-140)	
Surr: BROMOFLUOROBENZENE		94	용	(77-133)	
Surr: TOLUENE-D8		96	%	(77-131)	
Chemistry					
353.2					
ate/Time: 09/27/2012 1703	Analyst: LES		Dilution	; 2	*****
NITRATE + NITRITE NITROGEN		1.88		0.0400	mg/l
2320B					
ate/Time: 09/26/2012 1639	Analyst: CDC		Dilution		/2
ALKALINITY, TOTAL		57.3		2.00	mg/l
ENDPOINT PH		4.48			su

NITRATE + NITRITE NITROGEN	(AS N)	1.00	0,010		
SM 2320B					
Date/Time: 09/26/2012 1639	Analyst: CDC	Dilution:	1		
ALKALINITY, TOTAL		57.3	2.00	mg/1	
ENDPOINT PH		4.48		su	
SM 4500-S2-D					
Date/Time: 09/24/2012 1117	Analyst: CDC	Dilution:	1		
SULFIDE, TOTAL	<	0.0500 U	0.0500	mg/l	
SW846 9056A					
Date/Time: 09/27/2012 0529	Analyst: CDC	Dilution:	1		a champed and an analysis for the champed and an analysis and an analysis of a champed and a champed and a champed and an analysis of a champed and a champed an analysis of a champed and a champed and a champed and a champed and a champed an analysis of a champed and a champed and a champed and a champed an analysis of a champed and a champed an analysis of a champed and a champed an analysis of a champed an analysis of a champed and a champed an analysis of a champed and a champed an analysis of a champed and a champed an analysis of a champed and a champed an analysis of a champed an analysis of a champed and a champed an analysis of a champed and a champed an analysis of a champed an analysis of a champed and a champed an analysis of a champed and a champed an analysis of a champed an analysis of a champed and a champed an analysis of a champed and a champed an analysis of a champed and a champed an analysis of a champed an analysis of a champed and a champed an analysis of a champed analysis of a champed an analysis of a champed an analysis of a champed an analysis of a champed analysis of a champed analysis of a champed an lysis of a champed analysis of a champed an
SULFATE		1.04	1.00	mg/l	



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Report Date : October 29, 2012

Contact : BRYON DAHLGREN

Page 9 of 55

Report ID: AK2349

Certificate of Analysis

Client ID: **D12-7-33**

Sample ID: L12092401-04

Date Collected: 09/20/2012 1155

Date Received : 09/24/2012

Parameter

Result

RDL

Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

/Time: 09/24/2012 1722 Analyst: Pa	AP/JVB	D.	ilutio		
,1,1-TRICHLOROETHANE	<	5.00	U		ug/l
L,1,2,2-TETRACHLOROETHANE	<	5.00	U		ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U		ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U		ug/l
1,1-DICHLOROETHANE	<	5.00	U		ug/l
1.1-DICHLOROETHENE	<	5.00	U		ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U		ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U		ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1.2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5,00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5,00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5,00	ug/l



SULFATE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 10 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: D12-7-33 Sample ID: L12092401-04 Date Collected: 09/20/2012 1155 Date Received : 09/24/2012

Parameter		Result	Qual	RDL	Units	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5,00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		102	음	(74-140)		
Surr: BROMOFLUOROBENZENE		97	용	(77-133)		
Surr: TOLUENE-D8		98	상	(77-131)		
t Chemistry						
A 353.2						
Date/Time: 09/27/2012 1705			Dilution .		mq/l	
NITRATE + NITRITE NITROGEN	(AS N)	2.65		0.0400	mg/ r	
2320B						
Date/Time: 09/26/2012 1645	Analyst: CDC		Dilution		mg /1	
ALKALINITY, TOTAL		45.2		2.00	mg/l	
ENDPOINT PH		4.48			su	
4500-S2-D				_		
Data /mina. 00/24/2012 1121	Amairate CDC		Dilution 5	: 1		

SULFIDE, TOTAL SW846 9056A Dilution: 1 Date/Time: 09/27/2012 0600 Analyst: CDC



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 29, 2012 Page 11 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: **D12-4-58**Sample ID: L12092401-05

Date Collected: 09/20/2012 1420 Date Received: 09/24/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

e/Time: 09/24/2012 1750 Analyst: P.	AP/JVB	*******	ution: 1	····
1,1,1-TRICHLOROETHANE	<	5.00 U		ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00 U		ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U		ug/l
1,1,2-TRICHLOROETHANE	<	5.00 U		ug/l
1,1-DICHLOROETHANE	<	5.00 U		ug/l
1,1-DICHLOROETHENE	<	5.00 U		ug/1
1,2,3-TRICHLOROBENZENE	<	5.00 U		ug/l
1,2,4-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00 U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00 U	5.00	ug/l
1.2-DICHLOROPROPANE	<	5.00 0	5.00	ug/l
1,3-DICHLOROBENZENE	<	5,00 0	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00 0	5.00	ug/l
2-BUTANONE	<	10.0	10.0	ug/l
2-HEXANONE	<	10.0	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00 0	5.00	ug/l
ACETONE	<	10.0	10.0	ug/l
BENZENE	<	5.00 t	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00 (5.00	ug/l
BROMOFORM	<	5.00 (5.00	ug/l
BROMOMETHANE	<	10.0	10.0	ug/l
CARBON DISULFIDE	<	5.00 ر	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00 (5.00	ug/l
CHLOROBENZENE	<	5.00 (5.00	ug/l
CHLOROETHANE	<	10.0	10.0	ug/l
CHLOROFORM		5.85	5.00	ug/1
CHLOROMETHANE	<	10.0	J 10.0	ug/1
CIS-1,2-DICHLOROETHENE		76.4	5.00	ug/1
CIS-1,3-DICHLOROPROPENE	<	5.00	J 5.00	ug/l
CYCLOHEXANE	<	5.00	J 5.00	ug/1
DIBROMOCHLOROMETHANE	<	5.00	J 5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	J 5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 12 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: D12-4-58 Sample ID: L12092401-05 Date Collected: 09/20/2012 1420 Date Received : 09/24/2012

P		Result	Qual	RDL	Units	
Parameter						
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
	<	5.00	U	5.00	ug/l	
STYRENE	·	52.9		5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5,00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE		22.6	_	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	10.0	IJ	10.0	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	5.00	II.	5.00	ug/l	
XYLENE (TOTAL)	ζ	102	-	(74-140)	3.	
Surr: 1,2-DICHLOROETHANE-D4		96		(77-133)		
Surr: BROMOFLUOROBENZENE		97		(77-131)		
Surr: TOLUENE-D8		97		•		
Date/Time: 10/25/2012 1408	Analyst: JMT/JVB		Dilutio	10.0	ug/l	***************************************
1,4-DIOXANE		21.8			49/1	
Surr: 1,2-DICHLOROETHANE-D4		99	፟ ፟	(70-131)		

Sample Comments: L12092401-05

The 1,4-Dioxanes were analyzed out of the 14 day holding time.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD,

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 13 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: **D12-3-53**

Sample ID: L12092401-06

Date Collected: 09/20/2012 1625

Date Received : 09/24/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

ate/Time: 09/24/2012 1818 Analyst: PA	AP/JVB	Dilution:	1
1,1,1-TRICHLOROETHANE	<	5.00 U	5.00 ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00 U	5.00 ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U	10.0 ug/l
1,1,2-TRICHLOROETHANE	<	5.00 U	5.00 ug/l
1,1-DICHLOROETHANE	<	5.00 U	5.00 ug/l
1,1-DICHLOROETHENE	<	5,00 U	5.00 ug/l
1,2,3-TRICHLOROBENZENE	<	5.00 U	5.00 ug/l
1,2,4-TRICHLOROBENZENE	<	5.00 U	5.00 ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00 ug/l
1,2-DIBROMOETHANE	<	5.00 U	5.00 ug/l
1,2-DICHLOROBENZENE	<	5.00 U	5.00 ug/l
1,2-DICHLOROETHANE	<	5.00 U	5.00 ug/l
1,2-DICHLOROPROPANE	<	5.00 U	5.00 ug/l
1,3-DICHLOROBENZENE	<	5.00 U	5.00 ug/l
1,4-DICHLOROBENZENE	<	5.00 U	5.00 ug/l
2-BUTANONE	<	10.0 U	10.0 ug/l
2-HEXANONE	<	10.0 U	10.0 ug/l
4-METHYL-2-PENTANONE	<	5.00 U	5.00 ug/l
ACETONE	<	10.0 U	10.0 ug/l
BENZENE	<	5.00 U	5.00 ug/l
BROMODICHLOROMETHANE	<	5.00 U	5.00 ug/l
BROMOFORM	<	5.00 U	5.00 ug/l
BROMOMETHANE	<	10.0 U	10.0 ug/l
CARBON DISULFIDE	<	5,00 U	5.00 ug/l
CARBON TETRACHLORIDE	<	5.00 Ŭ	5.00 ug/l
CHLOROBENZENE	<	5.00 U	5.00 ug/l
CHLOROETHANE	<	10.0 U	10.0 ug/l
CHLOROFORM	<	5.00 U	5.00 ug/l
CHLOROMETHANE	<	10.0 U	10.0 ug/l
CIS-1,2-DICHLOROETHENE	<	5.00 U	5.00 ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00 U	5.00 ug/l
CYCLOHEXANE	<	5.00 U	5.00 ug/l
DIBROMOCHLOROMETHANE	<	5.00 U	5.00 ug/l
DICHLORODIFLUOROMETHANE	<	5.00 U	5.00 ug/l



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD. SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 29, 2012

Page 14 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: **D12-3-53** Sample ID: L12092401-06 Date Collected: 09/20/2012 1625

Date Received : 09/24/2012

Parameter		Result	Qua1	RDL	Units
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	Ū	5.00	ug/1
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	Ū	5.00	ug/l
TRICHLOROETHENE	<	5.00	Ū	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	Ū	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		103	용	(74-140)	
Surr: BROMOFLUOROBENZENE		97	음	(77-133)	
Surr: TOLUENE-D8		96	음	(77-131)	
	st: JMT/JVB	**********	Dilution	: 1	
1,4-DIOXANE	<	10.0	U	10.0	ug/l
Surr: 1,2-DICHLOROETHANE-D4		101	ક	(70-131)	

Sample Comments: L12092401-06

The 1,4-Dioxanes were analyzed out of the 14 day holding time.



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170 ROSWELL, GA 30076

Report Date : October 29, 2012

Contact : BRYON DAHLGREN

Page 15 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: D12-1-72.5

Sample ID: L12092401-07

Date Collected: 09/21/2012 0941

Date Received : 09/24/2012

Parameter

Result

RDL

Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Time: 09/24/2012 1846 Analyst:	PAP/JVB	E	ilution		
1,1-TRICHLOROETHANE	<	5.00	U		g/l
1,2,2-TETRACHLOROETHANE	<	5.00	U		lg/1
,1,2-TRICHLORO-1,2,2-TRIFLUOROETHAN	IE <	10.0	U		ig/1
.,1,2-TRICHLOROETHANE	<	5.00	U		ıg/1
,1-DICHLOROETHANE	<	5.00	U		ıg/l
,1-DICHLOROETHENE	<	5.00	U		ıg/l
. 2,3-TRICHLOROBENZENE	<	5.00	U		1g/l
L, 2, 4-TRICHLOROBENZENE	<	5.00	U		ıg/l
L,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U		1g/l
L,2-DIBROMOETHANE	<	5.00	U		ıg/l
1,2-DICHLOROBENZENE	<	5.00	U		1g/l
1,2-DICHLOROETHANE	<	5.00	U		ıg/l
L.2-DICHLOROPROPANE	<	5.00	U		1g/l
1,3-DICHLOROBENZENE	<	5.00	U		ıg/l
, 1,4-DICHLOROBENZENE	<	5.00	U		ıg/l
2-BUTANONE	<	10.0	Ū		ıg/l
2-HEXANONE	<	10.0	U		1g/l
4-METHYL-2-PENTANONE	<	5.00	U		ıg/l
ACETONE	<	10.0	U		.g/l
BENZENE	<	5.00	U		ug/l
BROMODICHLOROMETHANE	<	5.00	U		ug/l
BROMOFORM	<	5.00	U		ug/l
BROMOMETHANE	<	10.0	U		ug/l
CARBON DISULFIDE	<	5.00	U		ug/l
CARBON TETRACHLORIDE	<	5.00	U		ug/l
CHLOROBENZENE	<	5.00	U		ug/l
CHLOROETHANE	<	10.0	U		ug/l
CHLOROFORM	<	5.00	U		ug/l
CHLOROMETHANE	<	10.0	U		ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U		ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U		ug/l
CYCLOHEXANE	<	5.00	U		ug/l
DIBROMOCHLOROMETHANE	<	5.00	U		ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 16 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: **D12-1-72.5**Sample ID: L12092401-07

Date Collected: 09/21/2012 0941
Date Received : 09/24/2012

Parameter		Result	Qual	RDL	Units	
L d L dille c e L	4					
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	Ū	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5,00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1, 2-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5,00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL ACETATE VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4	•	102	왕	(74-140)		
		95		(77-133)		
Surr: BROMOFLUOROBENZENE		95		(77-131)		
Surr: TOLUENE-D8	rat TMT /TIP		Dilution	: 1		
	yst: JMT/JVB	10.0		10.0	ug/l	************
1,4-DIOXANE	<			(70-131)	~27 -	
Surr: 1,2-DICHLOROETHANE-D4		102	6	(//-131/		

Sample Comments: L12092401-07

The 1,4-Dioxanes were analyzed out of the 14 day holding time.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 17 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: D12-2-37.5 Sample ID: L12092401-08 Date Collected: 09/21/2012 1320 Date Received : 09/24/2012

Units \mathtt{RDL} Result Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B /04/0010 1014 Apalwat, PAP/JVR

Time: 09/24/2012 1914 Analyst:	PAP/JVB	D	ilution	: 1	***************************************
1,1-TRICHLOROETHANE	<	5.00	Ū	5.00	ug/l
1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
,1,2-TRICHLORO-1,2,2-TRIFLUOROETHAN	E <	10.0	Ū	10.0	ug/l
,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
.,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
.,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
.,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
,2-DICHLOROETHANE	<	5,00	U	5.00	ug/l
,2-DICHLOROPROPANE	<	5,00	U	5.00	ug/l
.,3-DICHLOROBENZENE	<	5,00	U	5,00	ug/l
,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	Ū	10.0	ug/l
1-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE		15.1		10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	Ū	5,00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	Ü	5.00	ug/1
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 18 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: **D12-2-37.5**Sample ID: L12092401-08

Date Collected: 09/21/2012 1320 Date Received : 09/24/2012

Parameter		Result	Qual	RDL	Units	
Falametel						
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
TSOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5,00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		104	응	(74-140)		
Surr: BROMOFLUOROBENZENE		96	용	(77-133)		
Surr: TOLUENE-D8		96	용	(77-131)		
	Analyst: JMT/JVB		Dilution	1: 1		
1,4-DIOXANE	<	10.0	Ū	10.0	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		101	8	(70-131)		

Sample Comments: L12092401-08

The 1,4-Dioxanes were analyzed out of the 14 day holding time.



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 29, 2012

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Certificate of Analysis

Client ID: D12-20-59

Sample ID: L12092401-09

Date Collected: 09/21/2012 1550

Date Received : 09/24/2012

Units Result Qual \mathtt{RDL} Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

te/Time: 09/24/2012 1941 Ana	alyst: PAP/JVB	D	ilution:	1	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUORO	DETHANE <	10.0	U	10.0 ug/l	
1.1.2-TRICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00 ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00 ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00 ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00 ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00 ug/l	
2-BUTANONE		10.1		10.0 ug/l	
2-HEXANONE	<	10.0	U	10.0 ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00 ug/l	
ACETONE		46.6		10.0 ug/l	
BENZENE	<	5.00	U	5.00 ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00 ug/l	
BROMOFORM	<	5.00	U	5.00 ug/l	
BROMOMETHANE	<	10.0	U	10.0 ug/l	
CARBON DISULFIDE	<	5.00	U	5.00 ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00 ug/l	
CHLOROBENZENE	<	5.00	U	5.00 ug/l	
CHLOROETHANE	<	10.0	U	10.0 ug/l	
CHLOROFORM		118		5.00 ug/l	
CHLOROMETHANE	<	10.0	U	10.0 ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	Ū	5.00 ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00 ug/l	
CYCLOHEXANE	<	5.00	U	5.00 ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5.00 ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00 ug/l	



SULFATE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 20 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: D12-20-59
Sample ID: L12092401-09

Date Collected: 09/21/2012 1550
Date Received : 09/24/2012

mg/l

1.00

Parameter			Result	Qual	RDL	Units	
ETHYLBENZENE		<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE		<	5.00	U	5.00	ug/l	
METHYL ACETATE		<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER		<	5.00	Ū	5.00	ug/l	
METHYLCYCLOHEXANE		<	5.00	Ū	5.00	ug/l	
METHYLENE CHLORIDE		<	5.00	U	5.00	ug/l	
STYRENE		<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE		<	5.00	U	5.00	ug/l	
TOLUENE		<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE		<	5.00	Ū	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE		<	5.00	U	5.00	ug/l	
TRICHLOROETHENE		<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE		<	5.00	U	5.00	ug/l	
VINYL ACETATE		<	10.0	U	10.0	ug/l	
VINYL CHLORIDE		<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)		<	5.00	Ū	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4			102	용	(74-140)		
Surr: BROMOFLUOROBENZENE			95	응	(77-133)		
Surr: TOLUENE-D8			94	용	(77-131)		
t Chemistry							
A 353.2							
Date/Time: 09/27/2012 1708	Analyst: LES			Dilutio	n: 2		******************
NITRATE + NITRITE NITROGEN			1.72		0.0400	mg/l	
2320B							
Date/Time: 09/26/2012 1649	Analyst: CDC	•		Dilutio	n: 1		
ALKALINITY, TOTAL			46.2		2.00	mg/l	
ENDPOINT PH			4.47			su	
f 4500-S2-D							
Date/Time: 09/24/2012 1122	Analyst: CDC			Dilutio	n: 1		
SULFIDE, TOTAL		<	0.0500	U	0.0500	mg/l	
1846 9056A							
Date/Time: 09/27/2012 0732	Analyst: CDC	.		Dilutic	on: 1	/3	



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 29, 2012 Page 21 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: TRIP BLANK #1
Sample ID: L12092401-10

Date Collected: 09/03/2012 0730

Date Received : 09/24/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 09/24/2012 1456 A	nalyst: PAP/JVB	D	ilutio	on: 1
1,1,1-TRICHLOROETHANE	, <	5.00	Ū	5.00 ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00 ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUO	ROETHANE <	10.0	U	10.0 ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00 ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00 ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00 ug/l
1,2-DICHLOROBENZENE	<	5.00	Ü	5.00 ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00 ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00 ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
2-BUTANONE	<	10.0	U	10.0 ug/l
2-HEXANONE	<	10.0	U	10.0 ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00 ug/l
ACETONE	<	10.0	U	10.0 ug/l
BENZENE	<	5.00	U	5.00 ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00 ug/l
BROMOFORM	<	5.00	U	5.00 ug/l
BROMOMETHANE	<	10.0	U	10.0 ug/l
CARBON DISULFIDE	<	5.00	U	5.00 ug/l
CARBON TETRACHLORIDE	<	5,00	U	5.00 ug/l
CHLOROBENZENE	<	5.00	U	5.00 ug/l
CHLOROETHANE	<	10.0	U	10.0 ug/l
CHLOROFORM	<	5.00	U	5.00 ug/l
CHLOROMETHANE	<	10.0	U	10.0 ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5,00 ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00 ug/l
CYCLOHEXANE	<	5.00	U	5.00 ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00 ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00 ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

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Certificate of Analysis

Client ID: TRIP BLANK #1 Sample ID: L12092401-10

Date Collected: 09/03/2012 0730

Date Received : 09/24/2012

Parameter		Result	Qual	RDL	Units
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5,00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		100	8	(74-140)	
Surr: BROMOFLUOROBENZENE		95	용	(77-133)	
Surr: TOLUENE-D8		96	용	(77-131)	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 23 of 55 Report ID: AK2349

Certificate of Analysis

Client ID: TRIP BLANK #2 Sample ID: L12092401-11

Date Collected: 09/03/2012 0730

Date Received : 09/24/2012

Parameter

RDL

Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 10/25/2012 1036 Analyst: JMT/JVB

Dilution: 1

10.0 ug/l

1,4-DIOXANE

Surr: 1,2-DICHLOROETHANE-D4

10.0 U 105 %

(70-131)

Sample Comments: L12092401-11

The 1,4-Dioxanes were analyzed out of the 14 day holding time.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 24 of 55 Report ID: AK2349

QC Summary Data



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 25 of 55 Report ID: AK2349

QC Batch Report - Batch Sample List

WorkGroup : WG63269 Description: VO/8260/TCL Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12092401-01	D12-23-59	1		09/24/2012 1627	PAP/JVB	1
L12092401-02	D12-9-47 MS/MSD	1		09/24/2012 1524	PAP/JVB	1
L12092401-03	D12-9-47A	1		09/24/2012 1655	PAP/JVB	1
L12092401-04	D12-7-33	1		09/24/2012 1722	PAP/JVB	1
L12092401-05	D12-4-58	1		09/24/2012 1750	PAP/JVB	1
L12092401-06	D12-3-53	1		09/24/2012 1818	PAP/JVB	1
L12092401-07	D12-1-72.5	1		09/24/2012 1846	PAP/JVB	1
L12092401-08	D12-2-37.5	1		09/24/2012 1914	PAP/JVB	1
L12092401-09	D12-20-59	1		09/24/2012 1941	PAP/JVB	1
L12092401-10	TRIP BLANK #1	1		09/24/2012 1456	PAP/JVB	1
MB63269:1	Method Blank	1		09/24/2012 1427	PAP/JVB	1
MS12092401-02:63269	Matrix Spike	1		09/24/2012 2037	PAP/JVB	1
MSD12092401-02:63269	Matrix Spike Duplicate	1		09/24/2012 2104	PAP/JVB	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 26 of 55 Report ID: AK2349

QC Batch Report - Surrogates % Recovery

WorkGroup: WG63269

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DCA	BFB	TOL
		74-140	77-133	77-131
L12092401-01	09/24/2012 1627	102	96	98
L12092401-02	09/24/2012 1524	101	98	98
L12092401-03	09/24/2012 1655	101	94	96
L12092401-04	09/24/2012 1722	102	97	98
L12092401-05	09/24/2012 1750	102	96	97
L12092401-06	09/24/2012 1818	103	97	96
L12092401-07	09/24/2012 1846	102	95	95
L12092401-08	09/24/2012 1914	104	96	96
L12092401-09	09/24/2012 1941	102	95	94
L12092401-10	09/24/2012 1456	100	95	96
MB63269:1	09/24/2012 1427	101	97	98
MS12092401-02:63269	09/24/2012 2037	101	96	96
MSD12092401-02:63269	09/24/2012 2104	100	95	94

DCA - 1,2-DICHLOROETHANE-D4

BFB - BROMOFLUOROBENZENE

TOL - TOLUENE-D8



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 29, 2012

Page 27 of 55 Report ID: AK2349

QC Batch Report - Method Blanks

WorkGroup: WG63269 Blank : MB63269:1

RDL Units Result Qual Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

/Time: 09/24/2012 1427 Analyst: P.	AP/JVB	D	ilution:	1	
,1,1-TRICHLOROETHANE	<	5.00	Ū	5.00	ug/l
.,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5,00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/1
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10,0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5,00	U	5.00	ug/l
BROMOMETHANE	<	1.0.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

Report Date : October 29, 2012

ROSWELL, GA 30076 Contact : BRYON DAHLGREN

Page 28 of 55 Report ID: AK2349

QC Batch Report - Method Blanks

WorkGroup: WG63269 Blank : MB63269:1

Parameter		Result	Qual	RDL	Units
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5,00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5,00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5,00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	ט	5.00	ug/l
STYRENE	<	5,00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5,00	ug/l
TRICHLOROETHENE	<	5.00	U	5,00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5,00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		101	용	(74-140)	
Surr: BROMOFLUOROBENZENE		97	용	(77-133)	
Surr: TOLUENE-D8		98	음	(77-131)	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 29 of 55 Report ID: AK2349

QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63269

MS/MSD : MS12092401-02:63269

MSD12092401-02:63269

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	Sample	MS		MS	Limits
Parameter	Added	Conc	Conc	Units	%REC	%REC
1,1,1-TRICHLOROETHANE	50.00	< 5.00	52.96	ug/l	106	75-121
1,1,2,2-TETRACHLOROETHANE	50.00	< 5.00	53.32	ug/l	107	78-114
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	< 10,00	48.18	ug/l	96	64-130
1,1,2-TRICHLOROETHANE	50.00	< 5.00	51,90	ug/l	104	78-113
1,1-DICHLOROETHANE	50.00	< 5.00	52.60	ug/l	105	76-116
1,1-DICHLOROETHENE	50.00	< 5.00	55.08	ug/l	110	71-127
1,2,3-TRICHLOROBENZENE	50.00	< 5.00	56.77	ug/l	114	75-112
1,2,4-TRICHLOROBENZENE	50.00	< 5.00	52.80	ug/l	106	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	< 5.00	57.95	ug/l	116	73-124
1,2-DIBROMOETHANE	50.00	< 5.00	52.09	ug/l	104	79-114
1,2-DICHLOROBENZENE	50.00	< 5.00	45.10	ug/l	90	76-109
1,2-DICHLOROETHANE	50.00	< 5.00	52.85	ug/l	106	74-122
1,2-DICHLOROPROPANE	50.00	< 5.00	51.44	ug/l	103	79-113
1,3-DICHLOROBENZENE	50.00	< 5.00	44.87	ug/l	90	69-118
1,4-DICHLOROBENZENE	50.00	< 5.00	49.29	ug/l	99	74-108
2-BUTANONE	50.00	< 10.00	58.61	ug/l	117	68-134
2-HEXANONE	50.00	< 10.00	56.92	ug/l	114	70-133
4-METHYL-2-PENTANONE	50.00	< 5.00	55.72	ug/l	111	69-135
ACETONE	50.00	< 10.00	64.55	ug/l	129	64-149
BENZENE	50.00	< 5.00	51.93	ug/l	104	77-114
BROMODICHLOROMETHANE	50.00	< 5.00	52.82	ug/l	106	76-123
BROMOFORM	50.00	< 5.00	55.39	ug/l	111	74-124
BROMOMETHANE	50.00	< 10.00	53.58	ug/l	107	64-121
CARBON DISULFIDE	50.00	< 5.00	51.32	ug/l	103	59-124
CARBON TETRACHLORIDE	50.00	< 5.00	55.15	ug/l	110	72-126
CHLOROBENZENE	50.00	< 5.00	44.31	ug/l	89	74-113
CHLOROETHANE	50.00	< 10.00	56.49	ug/l	113	71-121
CHLOROFORM	50.00	17.08	69.38	ug/l	105	76-119
CHLOROMETHANE	50.00	< 10.00	49.36	ug/l	99	59-123
CIS-1,2-DICHLOROETHENE	50.00	33.88	85.72	ug/l	104	74-118
CIS-1,3-DICHLOROPROPENE	50.00	< 5.00	55.35	ug/l	111	83-125
CYCLOHEXANE	50.00	< 5.00	48.06	ug/l	96	59-126
DIBROMOCHLOROMETHANE	50.00	< 5.00	53.33	ug/l	107	77-121
DICHLORODIFLUOROMETHANE	50.00	< 5.00	45.39	ug/l	91	53-141
ETHYLBENZENE	50.00	< 5.00	51.30	ug/l	103	70-130
ISOPROPYL BENZENE	50.00	< 5.00	45.03	ug/l	90	74-114
METHYL ACETATE	50.00	< 10.00	54.23	ug/l	108	68-122
METHYL-TERT-BUTYL ETHER	50.00	< 5.00	51.26	ug/l	103	74-119



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

SUITE 170

ROSWELL, GA 30076

1455 OLD ALABAMA RD.

Report Date : October 29, 2012

Contact : BRYON DAHLGREN

Page 30 of 55 Report ID: AK2349

QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63269

MS/MSD : MS12092401-02:63269

MSD12092401-02:63269

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	Sample	MS		MS	Limits
Parameter	Added	Conc	Conc	Units	%REC	%rec
METHYLCYCLOHEXANE	50.00	< 5.00	49.08	ug/l	98	61-126
METHYLENE CHLORIDE	50.00	< 5.00	51.08	ug/l	102	71-115
STYRENE	50.00	< 5.00	50.88	ug/l	102	75-116
TETRACHLOROETHENE	50.00	< 5.00	51.23	ug/l	102	69-121
TOLUENE	50.00	< 5.00	50.32	ug/1	101	74-115
TRANS-1,2-DICHLOROETHENE	50.00	< 5.00	53,45	ug/l	107	74-119
TRANS-1,3-DICHLOROPROPENE	50.00	< 5.00	49.81	ug/l	100	73-112
TRICHLOROETHENE	50.00	< 5.00	53.22	ug/l	106	74-120
TRICHLOROFLUOROMETHANE	50.00	< 5.00	55.74	ug/l	111	70-134
VINYL ACETATE	50.00	< 10.00	52.73	ug/l	105	59-146
VINYL CHLORIDE	50.00	< 10.00	49.67	ug/l	99	63-124
XYLENE (TOTAL)	150.0	< 5.00	141.3	ug/l	94	73-116

	Spike	MSD		MSD		Limit	s
Parameter	Added	Cond	Units	%REC	%RPD	%RPD	%REC
1,1,1-TRICHLOROETHANE	50.00	51.97	ug/l	104	2	16	75-121
1,1,2,2-TETRACHLOROETHANE	50.00	53.93	ug/l	108	1	18	78-114
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	48.80	ug/l	98	1	18	64-130
1,1,2-TRICHLOROETHANE	50.00	51.40	ug/l	103	1	14	78-113
1,1-DICHLOROETHANE	50.00	51.35	ug/l	103	2	15	76-116
1,1-DICHLOROETHENE	50.00	51,56	ug/l	103	7	16	71-127
1,2,3-TRICHLOROBENZENE	50.00	57,14	ug/l	114	1	20	75-112
1,2,4-TRICHLOROBENZENE	50.00	52.18	ug/l	104	1	18	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	60.57	ug/l	121	4	20	73-124
1,2-DIBROMOETHANE	50.00	51.60	ug/l	103	1	16	79-114
1,2-DICHLOROBENZENE	50.00	43.64	ug/l	87	3	15	76-109
1,2-DICHLOROETHANE	50.00	52.04	ug/l	104	2	16	74-122
1,2-DICHLOROPROPANE	50.00	50.36	ug/l	101	2	15	79-113
1,3-DICHLOROBENZENE	50.00	43.52	ug/l	87	3	17	69-118
1,4-DICHLOROBENZENE	50.00	47.22	ug/l	94	4	16	74-108
2-BUTANONE	50.00	62.95	ug/l	126	7	20	68-134
2-HEXANONE	50.00	60.58	ug/l	121	6	20	70-133
4-METHYL-2-PENTANONE	50.00	59.08	ug/l	118	6	19	69-135
ACETONE	50.00	68.75	ug/l	138	6	23	64-149
BENZENE	50.00	50.32	ug/l	101	3	15	77-114
BROMODICHLOROMETHANE	50.00	51.79	ug/1	104	2	16	76-123
BROMOFORM	50.00	55.73	ug/l	111	1	17	74-124
BROMOMETHANE	50.00	49.32	ug/l	99	8	22	64-121



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 31 of 55 Report ID: AK2349

QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63269

MS/MSD : MS12092401-02:63269

MSD12092401-02:63269

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	MSD		MSD		Limi	ts
Parameter	Added	Conc	Units	%REC	%RPD	%RPD	%REC
CARBON DISULFIDE	50,00	49.75	ug/l	100	3	21	59-124
CARBON TETRACHLORIDE	50.00	53.87	ug/l	108	2	18	72-126
CHLOROBENZENE	50.00	43.32	ug/l	87	2	15	74-113
CHLOROETHANE	50.00	52.49	ug/l	105	7	17	71-121
CHLOROFORM	50.00	68.31	ug/l	102	2	14	76-119
CHLOROMETHANE	50.00	47.20	ug/l	94	4	18	59-123
CIS-1,2-DICHLOROETHENE	50.00	83.01	ug/l	98	3	15	74-118
CIS-1,3-DICHLOROPROPENE	50.00	54.73	ug/l	109	1	16	83-125
CYCLOHEXANE	50.00	47.63	ug/l	95	1	17	59-126
DIBROMOCHLOROMETHANE	50.00	52.41	ug/l	105	2	16	77-121
DICHLORODIFLUOROMETHANE	50.00	44.40	ug/l	89	2	20	53-141
ETHYLBENZENE	50.00	49.46	ug/l	99	4	20	70-130
ISOPROPYL BENZENE	50.00	43.62	ug/l	87	3	17	74-114
METHYL ACETATE	50.00	56.92	ug/l	114	5	19	68-122
METHYL-TERT-BUTYL ETHER	50.00	51.02	ug/l	102	0	16	74-119
METHYLCYCLOHEXANE	50.00	48.94	ug/l	98	0	16	61-126
METHYLENE CHLORIDE	50.00	50.05	ug/l	100	2	17	71-115
STYRENE	50.00	49.95	ug/l	100	2	17	75-116
TETRACHLOROETHENE	50.00	50.27	ug/l	101	2	16	69-121
TOLUENE	50.00	48.93	ug/l	98	3	15	74-115
TRANS-1,2-DICHLOROETHENE	50.00	52.71	ug/l	105	1	16	74-119
TRANS-1,3-DICHLOROPROPENE	50.00	48.64	ug/l	97	2	16	73-112
TRICHLOROETHENE	50.00	52,07	ug/l	104	2	15	74-120
TRICHLOROFLUOROMETHANE	50.00	52.43	ug/l	105	6	18	70-134
VINYL ACETATE	50.00	53.94	ug/l	108	2	19	59-146
VINYL CHLORIDE	50,00	47,60	ug/l	95	4	16	63-124
XYLENE (TOTAL)	150.0	136.9	ug/l	91	3	17	73-116

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 32 of 55 Report ID: AK2349

QC Batch Report - Batch Sample List

WorkGroup : WG63498

Description: VO/DIOXANE -- 1025TA

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12092401-05	D12-4-58	2		10/25/2012 1408	JMT/JVB	1
L12092401-06	D12-3-53	2		10/25/2012 1438	JMT/JVB	1
L12092401-07	D12-1-72.5	2		10/25/2012 1508	JMT/JVB	1
L12092401-08	D12-2-37.5	2		10/25/2012 1538	JMT/JVB	1
L12092401-11	TRIP BLANK #2	1		10/25/2012 1036	JMT/JVB	1
MB63498:1	Method Blank	1		10/25/2012 0936	JMT/JVB	1
LCS63498;1	Laboratory Control Spike	1		10/25/2012 2008	JMT/JVB	1
MS12101701-15:63498	Matrix Spike	1		10/25/2012 1908	JMT/JVB	1
MSD12101701-15:63498	Matrix Spike Duplicate	1		10/25/2012 1938	JMT/JVB	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 33 of 55 Report ID: AK2349

QC Batch Report - Surrogates % Recovery

WorkGroup: WG63498

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DCA
		70-131
L12092401-05	10/25/2012 1408	99
L12092401-06	10/25/2012 1438	101
L12092401-07	10/25/2012 1508	102
L12092401-08	10/25/2012 1538	101
L12092401-11	10/25/2012 1036	105
MB63498:1	10/25/2012 0936	103
LCS63498:1	10/25/2012 2008	98
MS12101701-15:63498	10/25/2012 1908	97
MSD12101701-15:63498	10/25/2012 1938	96

DCA - 1,2-DICHLOROETHANE-D4



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 29, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63498

Blank

: MB63498:1

Parameter

Result

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 10/25/2012 0936 Analyst: JMT/JVB

ug/l

1,4-DIOXANE Surr: 1,2-DICHLOROETHANE-D4 10.0 U 103 %

(70-131)



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 35 of 55 Report ID: AK2349

QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63498

MS/MSD : MS12101701-15:63498

MSD12101701-15:63498

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC	
1,4-DIOXANE	100.0	< 10.00	92,66	ug/l	93	63-132	
Paramèter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC	
1,4-DIOXANE	100.0	89.63	ug/l	90	3	18 63-132	

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

Page 36 of 55 Report ID: AK2349

QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63498

: LCS63498:1 LCS

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike Added	LCS Conc			LCS %REC	
1 4-DIOYANE	100.0	82.4	7 u	a/l	82	67-133



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 29, 2012

Page 37 of 55 Report ID: AK2349

QC Batch Report - Batch Sample List

WorkGroup : WG63223

Mactix

: GW/ChemW

Description: WC/NO3NO2(5)

Prep Method

Analtyical Method: EPA 353.2

			PREP	ANALYT	ICAL		
Sample ID	Client ID	Run#	Date Time	Date	Time	Analyst	Dilution
L12092401-01	D12-23-59	1		09/27/2012	1710	LES	1
L12092401-02	D12-9-47 MS/MSD	1		09/27/2012	1655	LES	2
L12092401-03	D12-9-47A	1		09/27/2012	1703	LES	2
L12092401-04	D12-7-33	1		09/27/2012	1705	LES	2
L12092401-09	D12-20-59	1.		09/27/2012	1708	LES	2
MB63223:1	Method Blank	1		09/27/2012	1603	LES	1
LCS63223:1	Laboratory Control Spike	1		09/27/2012	1555	LES	1
MS12091701-04:63223	Matrix Spike	1		09/27/2012	1613	LES	2
MS12092401-02:63223	Matrix Spike	1		09/27/2012	1658	LES	2
MSD12091701-04:63223	Matrix Spike Duplicate	1		09/27/2012	1615	LES	2
MSD12092401-02:63223	Matrix Spike Duplicate	1		09/27/2012	1700	LES	2



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 29, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63223 Blank : MB63223:1

Parameter

Result Qual

RDL

Units

Matrix : GW/ChemW

Wet Chemistry

EPA 353.2

Dilution: 1

Date/Time: 09/27/2012 1603 Analyst: LES NITRATE + NITRITE NITROGEN (AS N)



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63223

MS/MSD : MS12091701-04:63223

MSD12091701-04:63223

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	3,15	4.18	mg/l	103	90-110
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	4.17	mg/l	102	0	10 90-110

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63223

MS/MSD : MS12092401-02:63223

MSD12092401-02:63223

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	1.85	2.93	mg/l	108	90-110
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	2.93	mg/l	108	0	10 90-110

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63223

LCS : LCS63223:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter			LCS Conc			Limits %REC
NITRATE + NITRITE NITROGEN	(AS N)	0.500	0.502	mg/l	100	90-110



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

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QC Batch Report - Batch Sample List

WorkGroup : WG63334

Description: Alkalinity-GW

Matrix : GW/ChemW

Prep Method :

Analtyical Method: SM 2320B

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12092401-01	D12-23-59	1		09/26/2012 1622	CDC	1
L12092401-02	D12-9-47 MS/MSD	1		09/26/2012 1629	CDC	1
L12092401-03	D12-9-47A	1		09/26/2012 1639	CDC	1
L12092401-04	D12-7-33	1		09/26/2012 1645	CDC	1
L12092401-09	D12-20-59	1		09/26/2012 1649	CDC	1
D12091908-08:63334	Duplicate	1		09/26/2012 1456	CDC	1
D12092401-02:63334	Duplicate	1		09/26/2012 1632	CDC	1
MB63334:1	Method Blank	1		09/26/2012 1406	CDC	1
LCS63334:1	Laboratory Control Spike	1		09/26/2012 1411	CDC	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63334 Blank : MB63334:1

Units \mathtt{RDL} Parameter Result Qual

Matrix : GW/ChemW

Wet Chemistry

SM 2320B

Dilution: 1 Date/Time: 09/26/2012 1406 Analyst: CDC mg/l U ALKALINITY, TOTAL 1.00 1.00 ENDPOINT PH 4.16 su



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63334

LCS

: LCS63334:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Spike Added	LCS Conc	Units	LCS %REC		
ALKALINITY, TOTAL	1000	964.8	mg/l	96	90-110	



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 29, 2012

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QC Batch Report - Sample Duplicates

WorkGroup: WG63334

Matrix

: GW/ChemW

Duplicate: D12091908-08:63334

Prep Method

: Analtyical Method: SM 2320B

Parameter		DUP Conc	RDL	Units	%RPD		
ALKALINITY, TOTAL	21.11	21.61	1.00	mg/l	2	10	

NOTE: Calculation of %RPD is not required for concentrations less than 10X the RDL.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

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QC Batch Report - Sample Duplicates

WorkGroup: WG63334

Duplicate: D12092401-02:63334

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Sample Conc	DUP Conc	RDL	Units	%RPD	RPD	
ALKALINITY, TOTAL	43.22	45.23	2.00	mg/l	5	10	

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 29, 2012

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QC Batch Report - Batch Sample List

WorkGroup : WG63322 Description: Sulfide

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12092401-01	D12-23-59	1		09/24/2012 1115	CDC	1
L12092401-02	D12-9-47 MS/MSD	1		09/24/2012 1116	CDC	1
L12092401-03	D12-9-47A	1		09/24/2012 1117	CDC	1
L12092401-04	D12-7-33	1		09/24/2012 1121	CDC	1
L12092401-09	D12-20-59	1		09/24/2012 1122	CDC	1
MB63322:1	Method Blank	1		09/24/2012 1120	CDC	1
LCS63322:1	Laboratory Control Spike	1		09/24/2012 1107	CDC	1
MS12092401-02:63322	Matrix Spike	1		09/24/2012 1118	CDC	1
MS12092401-09:63322	Matrix Spike	1		09/24/2012 1123	CDC	1
MSD12092401-02:63322	Matrix Spike Duplicate	1		09/24/2012 1119	CDC	1
MSD12092401-09:63322	Matrix Spike Duplicate	1		09/24/2012 1123	CDC	1



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 29, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63322 : MB63322:1 Blank

Parameter

Result

Qua1

Units

Matrix : GW/ChemW

Wet Chemistry

Date/Time: 09/24/2012 1120

SULFIDE, TOTAL

Analyst: CDC Dilution: 1

mg/l

SM 4500-S2-D



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD. SUITE 170

ROSWELL, GA 30076

Report Date : October 29, 2012

Contact : BRYON DAHLGREN

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63322

MS/MSD : MS12092401-02:63322

MSD12092401-02:63322

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC	
SULFIDE, TOTAL	0.500	< 0.0500	0.528	mg/l	106	81-121	
Parameter SULFIDE, TOTAL	Spike Added 0.500	MSD Conc 0.536	Units mg/l	MSD %REC 107	%RPD 1	Limits %RPD %REC 10 81-121	

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

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1455 OLD ALABAMA RD. SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : October 29, 2012

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QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63322

MS/MSD : MS12092401-09:63322

MSD12092401-09:63322

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC	
SULFIDE, TOTAL	0.500	< 0.050 0	0.532	mg/l	106	81-121	
Parameter	Spike Added	MSD Cone	Units	MSD %REC	%RPD	Limits %RPD %RE	c
SULFIDE, TOTAL	0.500	0.523	mg/l	105	2	10 81-	121

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63322

LCS : LCS63322:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added				Limics
SULFIDE, TOTAL	0.500	0.516	mg/l	103	90-110



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

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QC Batch Report - Batch Sample List

WorkGroup : WG63296 Description: iC-GW

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

			PREP	ANALYTICA		
Sample ID	Client ID	Run#	Date Time	Date Tim	e Analyst	Dilution
T.12092401~01	D12-23-59	1		09/27/2012 032	7 CDC	1
L12092401-02	D12-9-47 MS/MSD	1		09/27/2012 035	B CDC	1
L12092401-03	D12-9-47A	1		09/27/2012 052	9 CDC	1
L12092401-04	D12-7-33	1		09/27/2012 060	O CDC	1
L12092401-09	D12-20-59	1		09/27/2012 073	2 CDC	1
MB63296:1	Method Blank	1		09/27/2012 025	7 CDC	1
LCS63296:1	Laboratory Control Spike	1		09/27/2012 103	5 CDC	1
MS12092401-02:63296	Matrix Spike	1		09/27/2012 093	4 CDC	1
MSD12092401-02:63296	Matrix Spike Duplicate	1		09/27/2012 110	5 CDC	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

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QC Batch Report - Method Blanks

WorkGroup: WG63296 Blank : MB63296:1

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Wet Chemistry

SW846 9056A

Date/Time: 09/27/2012 0257	Analyst: CDC	Dilution:		
CHLORIDE, TOTAL	<	1.00 U	1.00	mg/l
NITRATE NITROGEN (AS N)	<	0.100 U	0.100	mg/l
SULFATE	<	1.00 U	1.00	mg/l



SULFATE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

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80-120

15

QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63296

MS/MSD : MS12092401-02:63296

MSD12092401-02:63296

Matrix

mg/1

: GW/ChemW

0

Prep Method

Analtyical Method: SW846 9056A

94

	Spike	Sample	MS		MS	Limits	
Parameter	Added	Conc	Conc	Units	%REC	%rec	
CHLORIDE, TOTAL	10.00	4.29	14.35	mg/l	101	80-120	
NITRATE NITROGEN (AS N)	0.500	1.72	2.26	mg/l	108	80-120	
SULFATE	10.00	1.20	10.60	mg/l	94	80-120	
							000
	Spike	MSD		MSD		Limits	
Parameter	Added	Conc	Units	%REC	%RPD	%RPD %REC	
CHLORIDE, TOTAL	10.00	14.34	mg/l	100	0	15 80-120	
NITRATE NITROGEN (AS N)	0.500	2.22	mg/l	102	1	15 80-120	

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.

10.57

10.00



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : October 29, 2012

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QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63296

LCS

: LCS63296:1

 ${\tt Matrix}$

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

Parameter		Conc	Units	%REC	Limits %REC	
CHLORIDE, TOTAL	10.00	9.85	mg/l	98	80-120	
NITRATE NITROGEN (AS N)	0.500	0.511	mg/l	102	80-120	
SULFATE	10.00	9.69	mg/l	97	80-120	



Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RDL	Report Detection Limit	MDL	Method Detection Limit
PQL	Practical Quantitation Limit	DL	Detection Limit
LOQ	Limit of Quantitation	LOD	Limit of Detection
SQL	Sample Quantitation Limit	TIC	Tentatively Identified Compound
С	Degrees Centigrade	F	Degrees Fahrenheit
umhos/cm	micromhos/cm	meq	milliequivalents
su	Standard Units		

Units of concentration in milligrams per liter for liquids and milligrams per kilogram for solids. Also mg/l, mg/kg

referred to as Parts Per Million or "ppm".

Units of concentration in micrograms per liter for liquids and micrograms per kilograms for solids. ug/l, ug/kg

Also referred to as Parts Per Billion or "ppb".

Less Than < Greater Than

Solid samples (i.e. soil, sludge, and solid waste) are reported on an as received basis unless otherwise noted.

Data Qualifiers:

- Analyte also detected in the method blank.
- Amendable Cyanide is a negative value due to an unknown interference.
- Surrogate Standard Recovery exceeds the laboratory established acceptance limits.
- The reported result is an estimated value (eg matrix interference observed or concentration outside the quantitation range.
- Non-target analyte. The analyte is TIC (using mass spectrometry). N
- Concentration difference between primary and confirmation columns >40%.
- One or more quality control criteria failed (e.g., LCS recovery, surrogate spike recovery or CCV
- Final concentration is below the detection limit.
- Defined in report comments.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or biological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of the material involved, the test results will be meaningless. If you have any questions regarding the proper techniques of collecting samples, please contact us. However, we cannot be held responsible for sample integrity unless sampling has been performed by a member of our staff.

REPRESENTATION AND LIMITATION OF LIABILITY - The accuracy of all analytical results for samples begins as it is received by the laboratory. Integrity of the sample begins at the time it is placed in the possession of authorized Davis & Floyd, Inc. Laboratories personnel. All other warranties, expressed or implied, are disclaimed. Liability is limited to the cost of the analysis.

Chain of Custody Record

AECOM Client D F Collected By 77201 012 Contact 012 DI 16-110 7313 2 D 12-2)12-N P i W Mark Hartford ű, 5 30 C3 1 Sample Description 2 0 22 ころ ار دو م Appen, NOTICE: Mark Harter 1 ナレーミッ £ ナフーや 1180 S 00 300 21-12 14.4 Auriga - Sptbg, SC 061576.08 Project / Site Location Date 1630 Initiated Bryon Dahlgren 1630 Time Date Time 3-21-12 9-3-12 3-12-2 9-20-12 9-20-12 9-211-12 Propri (0/3 3-24-11015 Sample Collection

Date Time Received By 9-2-12/1550 9-20-2 9-3-12 9-20-1 7797 Sampling Composite Only 020 かいか 1420 0730 10/5 1320 0720 252 700 Copy To Atmospheric Conditions Composite X X X X \rangle X × × × Grab U 5 V1 P3 5 w V Matrix Type 924 Lab Certification ID: SC - 24110, NC - 25, NELAP - E87633, NY - 11996, TN - 2923, VA - 934 O Ö 0 T O T Number of Containers 816 E. Durst Avenue, Greenwood, SC 29649 Date 1 ENTER NUMBER OF SAMPLE CONTAINERS Email: Laboratory@davisfloyd.com 6 (5.) WW 3x40 G CV (1) W W W W Circle: C or F (N) **⊳**|VOC's Temp. at Harvest Sample Chamber TFE 0730 500 P SO4, Alkalinity Time Time Reporting Requirements: **Standard [] Data Package (Specify Level: Tumaround Requirements:/[*]\Standard | [] Rush (Specify:_ Required Parameters, Containers and Preservatives (P*) ⊞Sulfide 125 P Receipted in Laboratory By Ending Beginning Relinquished By Flow Measurement (Note 1) mNO3/NO2 125 P 3x40 G TFE WILL W 01,4-Dioxane (864) 229-4413 Fax: (864) 229-7119 Internet: www.davisfloyd.com 9.24.10 Date Date Note:Indicate immediate delivery for those shipments in which the temperature does not have adequate time to reach 410. 0730 Time 1234) Cooler ID (if available On Ice: Yes No Receipt Information Shipped Via Indicate any known or expected HOT Tracking Number UPS FEDEX CLIENT COURIER OTHER hazards with a "X" PO / Quote Number Laboratory Work Request Page_ Special Instructions Comments Office Use Only 20 \Temp(C)_ 06 00, 00 Ö of Fraction 1/20921401 40 9 03 0 State \$ Þ 6 SC 0 70

(P) Preservative Definitions A -None Matrix Type Definitions 1-Drinking Water 2 - Clean Water 5 - Groundwater 7 - Soil/Sediment 8 - Liquid Sludge 9 - Oil A - None B - H2SO4 C - HCI D - HNO3 E - Zn Acetate, NaOH F - Filtered G - Na2S2O3 12 - Air

(Note 1) For Discharge Measurements

Start Date

Multiplier

Intact / Broken / Name Davis & Floyd, Inc. FL02_03 (04/10)

المالاً/ Immediate Delivery: Yes



January 03, 2013

BRYON DAHLGREN AECOM 1455 OLD ALABAMA RD. SUITE 170 ROSWELL, GA 30076

Report ID: AL17 Page 1 of 50

Login Number

:L12121302

Project Number

:61576.08

Description

:AURIGA POLYMERS - SPARTANBURG, SC

Dear Bryon Dahlgren:

We are pleased to provide the enclosed analytical results for the samples received by Davis & Floyd, Inc. on December 12, 2012.

A formal Quality Assurance/Quality Control program is maintained by Davis & Floyd, which is designed to meet or exceed the ISO/IEC 17025, EPA, NELAP or other appropriate regulatory requirements. All analytical analyses for this project met QA/QC criteria and the results are within the 99% confidence interval for each method unless otherwise stated in the footnotes. This report is to be reproduced only in full.

Feel free to contact our Client Services Representative at (864) 229-4413 if further explanation of the analysis is required. Unless other arrangements have been made, samples will be disposed of or returned 14 days from the date of the report. We appreciate the opportunity to provide services to your firm.

Sincerely, DAVIS & FLOYD, INC.

John H. McCord, Ír.

Laboratory Manager

This report conatine a TOTAL of _____ pages, including attachments.



SC Certification Number: 24110001

Client

: AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date Page 2 of 50

: January 03, 2013 Report ID: AL17

Certificate of Analysis Report

Sample ID	Client ID	Date Collected	Date Received	
L12121302-01	D12-28-87	12/10/2012 1205	12/12/2012	
L12121302-02	D12-28-66	12/11/2012 0930	12/12/2012	
L12121302-03	MW-200	12/11/2012 1030	12/12/2012	
L12121302-04	D12-27-75	12/11/2012 1255	12/12/2012	
L12121302-05	D12-27-61	12/11/2012 1645	12/12/2012	
L12121302-06	D12-29-50	12/12/2012 1130	12/12/2012	

This data report has been prepared and reviewed in accordance with standard operating procedures. Test results relate only to the sample tested.

Please direct any questions to your Project Manager

Reviewed by

John H. McCord, Jr.



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD. SUITE 170

ROSWELL, GA 30076

Report Date : January 03, 2013

Contact : BRYON DAHLGREN

Page 3 of 50 Report ID: AL17

Certificate of Analysis

Client ID: D12-28-87 Sample ID: L12121302-01 Date Collected: 12/10/2012 1205

Date Received : 12/12/2012

 \mathtt{RDL}

Parameter

Result

Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

/Time: 12/13/2012 1407 Analyst: JV	'B	***************************************				
,1,1-TRICHLOROETHANE	<	5.00	Ū	5.00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l	
.,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE		14.9		10.0	ug/l	
BENZENE	<	5.00	ū	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	Ū	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5,00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5,00	Ū	5,00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
CYCLOHEXANE	<	5.00	U	5.00	ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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Certificate of Analysis

Client ID: D12-28-87 Sample ID: L12121302-01 Date Collected: 12/10/2012 1205

Date Received : 12/12/2012

Parameter		Result	Qual	RDL	Units
-					
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U .	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		94	용	(74-140)	
Surr: BROMOFLUOROBENZENE		92	웅	(77-133)	
Surr: TOLUENE-D8		93	용	(77-131)	
e/Time: 12/14/2012 1539 Analys	t: PAP		Dilution:	20	
CHLOROFORM		1120		100	ug/l
Surr: 1,2-DICHLOROETHANE-D4		125	용	(74-140)	

Wet Chemistry

EPA 353.2

Date/Time: 12/19/2012 1642	Analyst: LVICKE	RY Dilution:	1	
NITRATE + NITRITE NITROGEN	(AS N)	1.26	0,0200	${\sf mg/1}$
SM 2320B				
Date/Time: 12/18/2012 1435	Analyst: CDC	Dilution:	1	
ALKALINITY, TOTAL		86.1	2.00	mg/l
ENDPOINT PH		4.50		su
SM 4500-S2-D				
Date/Time: 12/17/2012 1146	Analyst: CDC	Dilution:	1	
SULFIDE, TOTAL	<	0.0500 U	0.0500	mg/l
SW846 9056A				
Date/Time: 12/13/2012 1008	Analyst: CDC	Dilution:	1	
SULFATE		3.27	1.00	mg/l



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : January 03, 2013

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Certificate of Analysis

Client ID: D12-28-66
Sample ID: L12121302-02

Date Collected: 12/11/2012 0930

Date Received : 12/12/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

/Time: 12/13/2012 1434 Analyst	; JVB	Di	lution: 1		
,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
,1,2-TRICHLORO-1,2,2-TRIFLUOROETH	ANE <	10.0	U	10.0	ug/l
,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
,1-DICHLOROETHANE	<	5.00	Ū	5.00	ug/l
,1-DICHLOROETHENE		10.8		5.00	ug/l
,2,3-TRICHLOROBENZENE	<	5.00	Ū	5.00	ug/l
,2,4-TRICHLOROBENZENE	<	5,00	Ū	5.00	ug/l
, 2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
,2-DIBROMOETHANE	<	5,00	U	5.00	ug/l
, 2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
, 2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/1
-BUTANONE	<	10.0	U	10.0	ug/l
-HEXANONE	<	10.0	U	10.0	ug/l
-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
CETONE	<	10.0	U	10.0	ug/l
ENZENE	<	5.00	U	5.00	ug/l
ROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
ROMOFORM	<	5.00	U	5.00	ug/l
ROMOMETHANE	<	10.0	U	10.0	ug/l
ARBON DISULFIDE	<	5.00	U	5.00	ug/l
ARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
HLOROBENZENE	<	5.00	U	5.00	ug/l
HLOROETHANE	<	10.0	U	10.0	ug/l
HLOROMETHANE	<	10.0	U	10.0	ug/l
IS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
SIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
YCLOHEXANE	<	5.00	U	5.00	ug/l
IBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
CHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l
THYLBENZENE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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Certificate of Analysis

Client ID: **D12-28-66** Sample ID: L12121302-02 Date Collected: 12/11/2012 0930

Date Received : 12/12/2012

Parameter		Result	Qual	RDL	Units
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5,00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	Ū	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		94	용	(74-140)	
Surr: BROMOFLUOROBENZENE		92	ે	(77-133)	
Surr: TOLUENE-D8		92	왕	(77-131)	
Date/Time: 12/14/2012 1605	Analyst: PAP		Dilution	1: 20	
CHLOROFORM		1040		100	ug/l
Surr: 1,2-DICHLOROETHANE-D4		117	용	(74-140)	

Wet Chemistry

EPA 353.2

Date/Time: 12/19/2012 1644	Analyst: LVICKERY	Dilution: 1			
NITRATE + NITRITE NITROGEN	(AS N)	1.67	0.0200	mg/l	
SM 2320B					
Date/Time: 12/18/2012 1442	Analyst: CDC	Dilution: 1			***************************************
ALKALINITY, TOTAL		67.7	2.00	mg/l	
ENDPOINT PH		4.50		su	
SM 4500-S2-D					
Date/Time: 12/17/2012 1147	Analyst: CDC	Dilution: 1			
SULFIDE, TOTAL	<	0.0500 U	0.0500	mg/l	
SW846 9056A					
Date/Time: 12/13/2012 0837	Analyst: CDC	Dilution: 1			
SULFATE	<	1.00 U	1.00	mg/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact ; BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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Certificate of Analysis

Client ID: MW-200 Sample ID: L12121302-03 Date Collected: 12/11/2012 1030

Date Received : 12/12/2012

Parameter

Result Qual

 \mathtt{RDL}

Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Time: 12/13/2012 1341 Analyst	: JVB	Dilu	tion: 1	***************************************
,1,1-TRICHLOROETHANE	<	5.00 U	5.00	ug/l
,1,2,2-TETRACHLOROETHANE	<	5.00 U	5,00	ug/l
,1,2-TRICHLORO-1,2,2-TRIFLUOROETHA	NE <	10.0 U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00 U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00 U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00 U	5.00	ug/l
L,2,3-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l
L,2,4-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l
L,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00	ug/l
L,2-DIBROMOETHANE	<	5,00 U	5.00	ug/l
L,2-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
L,2-DICHLOROETHANE	<	5.00 U	5,00	ug/l
L,2-DICHLOROPROPANE	<	5.00 U	5.00	ug/l
L,3-DICHLOROBENZENE	<	5.00 U	5,00	ug/l
l,4-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
2-BUTANONE	<	10.0 U	10.0	ug/l
2-HEXANONE	<	10.0 U	10.0	ug/l
1-METHYL-2-PENTANONE	<	5.00 U	5.00	ug/l
ACETONE	<	10.0 U	10.0	ug/l
BENZENE	<	5.00 U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00 U	5.00	ug/l
BROMOFORM	<	5.00 U	5.00	ug/l
BROMOMETHANE	<	10.0 U	10.0	ug/l
CARBON DISULFIDE	<	5.00 U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00 U	5.00	ug/l
CHLOROBENZENE	<	5.00 U	5.00	ug/l
CHLOROETHANE	<	10.0 U	10.0	ug/l
CHLOROFORM	<	5.00 U	5.00	ug/l
CHLOROMETHANE	<	10.0 U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00 U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00 U	5.00	ug/l
CYCLOHEXANE	<	5.00 U	5,00	ug/l
DIBROMOCHLOROMETHANE	<	5.00 U	5,00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00 U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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Certificate of Analysis

Client ID: MW-200 Sample ID: L12121302~03 Date Collected: 12/11/2012 1030

Date Received : 12/12/2012

rameter		Result	Qual	RDL	Units
HYLBENZENE	<	5.00	U	5.00	ug/l
OPROPYL BENZENE	<	5.00	U	5.00	ug/l
THYL ACETATE	<	10.0	U	10.0	ug/l
THYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
THYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
THYLENE CHLORIDE	<	5.00	U	5.00	ug/l
YRENE	<	5.00	U	5.00	ug/l
TRACHLOROETHENE	<	5.00	U	5.00	ug/l
LUENE	<	5.00	U	5.00	ug/l
ANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
ANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
RICHLOROETHENE	<	5.00	U	5.00	ug/l
RICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/1
NYL ACETATE	<	10.0	U	10.0	ug/l
NYL CHLORIDE	<	10.0	U	10.0	ug/l
LENE (TOTAL)	<	5.00	U	5.00	ug/l
nr: 1,2-DICHLOROETHANE-D4		96	움	(74-140)	
rr: BROMOFLUOROBENZENE		92	용	(77-133)	
rr: TOLUENE-D8		96	&	(77-131)	



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

SUITE 170

ROSWELL, GA 30076

1455 OLD ALABAMA RD.

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Report Date : January 03, 2013

Contact : BRYON DAHLGREN

Certificate of Analysis

Client ID: D12-27-75

Sample ID: L12121302-04

Date Collected: 12/11/2012 1255

Date Received : 12/12/2012

 \mathtt{RDL}

Parameter

Result

Qua1

Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Date/Time: 12/13/2012 1500 Analyst: JV	'B	I	ilutic	lon: 1
1,1,1-TRICHLOROETHANE	<	5.00	Ū	5.00 ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00 ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0 ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00 ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00 ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00 ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00 ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00 ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00 ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00 ug/l
2-BUTANONE	<	10.0	U	10.0 ug/l
2-HEXANONE	<	10.0	U	10.0 ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00 ug/l
ACETONE	<	10.0	U	10.0 ug/l
BENZENE	<	5.00	U	5.00 ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00 ug/l
BROMOFORM	<	5.00	U	5.00 ug/l
BROMOMETHANE	<	10.0	U	10.0 ug/l
CARBON DISULFIDE	<	5.00	U	5.00 ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00 ug/l
CHLOROBENZENE	<	5.00	U	5.00 ug/l
CHLOROETHANE	<	10.0	U	10.0 ug/l
CHLOROMETHANE	<	10.0	U	10.0 ug/l
CIS-1,2-DICHLOROETHENE	<	5,00	U	5.00 ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00 ug/l
CYCLOHEXANE	<	5.00	U	5.00 ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00 ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00 ug/l
ETHYLBENZENE	<	5.00	U	5.00 ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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Certificate of Analysis

Client ID: D12-27-75 Sample ID: L12121302-04 Date Collected: 12/11/2012 1255

Date Received : 12/12/2012

Parameter		Result	Qua1	RDL	Units	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10,0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5,00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		96	용	(74-140)		
Surr: BROMOFLUOROBENZENE		93	응	(77-133)		
Surr: TOLUENE-D8		97	용	(77-131)		
e/Time: 12/14/2012 1216 Analys	it: PAP		Dilution:	2	***************************************	
CHLOROFORM		361		10.0	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		107	음	(74-140)		

Wet Chemistry

EPA 353.2

Date/Time: 12/19/2012 1647	Analyst: LVICKERY	Dilution: 1			
NITRATE + NITRITE NITROGEN	(AS N)	0.919	0.0200	mg/l	
SM 2320B					
Date/Time: 12/18/2012 1549	Analyst: CDC	Dilution: 1			
ALKALINITY, TOTAL		56.4	2.00	mg/l	
ENDPOINT PH		4.50		su	
SM 4500-S2-D					
Date/Time: 12/17/2012 1148	Analyst: CDC	Dilution: 1			
SULFIDE, TOTAL	<	0.0500 U	0.0500	mg/l	
SW846 9056A					
Date/Time: 12/13/2012 1039	Analyst: CDC	Dilution: 1			
SULFATE	<	1,00 U	1.00	mg/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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Certificate of Analysis

Client ID: D12-27-61 Sample ID: L12121302-05

Date Collected: 12/11/2012 1645

Date Received : 12/12/2012

Units RDL Parameter Result Qua1

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Time: 12/13/2012 1526 Analyst	: JVB	D	ilution:	1	
,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
l,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHA	NE <	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5,00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5,00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5,00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	Ū	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE		17,9		10.0	ug/l
BENZENE	<	5,00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	Ū	5.00	ug/l
BROMOFORM	<	5.00	Ū	5,00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l
ETHYLBENZENE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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Certificate of Analysis

Client ID: **D12-27-61** Sample ID: L12121302-05 Date Collected: 12/11/2012 1645

Date Received : 12/12/2012

Parameter		Result	Qual	RDL	Units
					4-
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5,00	Ŭ	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	Ŭ	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	Ŭ	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		94	웅	(74-140)	
Surr: BROMOFLUOROBENZENE		92	웅	(77-133)	
Surr: TOLUENE-D8		92	음	(77-131)	
te/Time: 12/14/2012 1241 Analys	st: PAP	2	Dilution:	2	
CHLOROFORM		299		10.0	ug/l
Surr: 1,2-DICHLOROETHANE-D4		111	ક	(74-140)	

Wet Chemistry

EPA 353.2

EPA 353.2				
Date/Time: 12/19/2012 1649	Analyst: LVICKERY	Dilution: 1		
NITRATE + NITRITE NITROGEN	(AS N)	1.18	0.0200	mg/l
SM 2320B				
Date/Time: 12/18/2012 1604	Analyst: CDC	Dilution: 1		
ALKALINITY, TOTAL		75.9	2.00	mg/l
ENDPOINT PH		4.50		su
SM 4500-S2-D				
Date/Time: 12/17/2012 1149	Analyst: CDC	Dilution: 1		
SULFIDE, TOTAL	<	0.0500 U	0.0500	mg/l
SW846 9056A				
Date/Time: 12/13/2012 1110	Analyst: CDC	Dilution: 1		
SULFATE	<	1.00 U	1.00	mg/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

Page 13 of 50 Report ID: AL17

Certificate of Analysis

Client ID: **D12-29-50**Sample ID: L12121302-06

Date Collected: 12/12/2012 1130

Date Received : 12/12/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Time: 12/13/2012 1552 Analyst	: JVB	D.	ilution:	: 1	
,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	Ū	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHAI	VE <	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1~DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5,00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5,00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5,00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM		9.02		5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SULFATE

LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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Certificate of Analysis

Client ID: **D12-29-50**Sample ID: L12121302-06

Date Collected: 12/12/2012 1130
Date Received : 12/12/2012

mg/l

Parameter		Result	Qua1	RDL	Units	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4	!	97	용	(74-140)		
Surr: BROMOFLUOROBENZENE		94	용	(77-133)		
Surr: TOLUENE-D8		96	용	(77-131)		
et Chemistry						
PA 353.2						
Date/Time: 12/19/2012 1652	Analyst: LVICKERY		Dilution	1: 1	********************************	
NITRATE + NITRITE NITROGEN		0,963		0.0200	mg/l	
M 2320B						
Date/Time: 12/18/2012 1609	Analyst: CDC		Dilution	n: 1		
ALKALINITY, TOTAL	***************************************	41.0		2.00	mg/l	
ENDPOINT PH		4.50			su	
M 4500-S2-D						
Date/Time: 12/17/2012 1150	Analyst: CDC		Dilution	n: 1		
SULFIDE, TOTAL	<	0.0500		0.0500	mg/l	
W846 9056A						
Date/Time: 12/13/2012 1413	Analyst: CDC		Dilution		an an airean an an aige an	, a , a , a , a , a , a , a , a , a , a
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SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013 Page 15 of 50 Report ID: AL17

QC Summary Data



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : January 03, 2013

Page 16 of 50 Report ID: AL17

# QC Batch Report - Batch Sample List

WorkGroup : WG63907
Description: VO/8260/TCL

Matrix : GW/ChemW

Prep Method

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	u# Date Time Da	Date Time	Analyst	Dilution
L12121302-01	D12-28-87	1		12/13/2012 1407	JVB	1
L12121302-01	D12-28-87	2		12/14/2012 1539	PAP	20
L12121302-02	D12-28-66	1		12/13/2012 1434	JVB	1
L12121302-02	D12-28-66	2		12/14/2012 1605	PAP	20
L12121302-03	MW-200	1		12/13/2012 1341	JVB	1
L12121302-04	D12-27-75	1		12/13/2012 1500	JVB	1
L12121302-04	D12-27-75	2		12/14/2012 1216	PAP	2
L12121302-05	D12-27-61	1		12/13/2012 1526	JVB	1
L12121302-05	D12-27-61	2		12/14/2012 1241	PAP	2
L12121302-06	D12-29-50	1		12/13/2012 1552	JVB	1
MB63907:1	Method Blank	1		12/13/2012 1033	JVB	1
MB63907:2	Method Blank	1		12/14/2012 0927	PAP	3
LCS63907:1	Laboratory Control Spike	1		12/13/2012 1921	JVB	1
LCS63907:2	Laboratory Control Spike	1		12/14/2012 1630	PAP	:
MS12121002-19:63907	Matrix Spike	1		12/13/2012 1737	JVB	1
MSD12121002-19:63907	Matrix Spike Duplicate	1		12/13/2012 1803	JVB	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

Page 17 of 50 Report ID: AL17

# QC Batch Report - Surrogates % Recovery

WorkGroup: WG63907

Matrix : GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DCA	BFB	TOL
		74-140	77-133	77-131
L12121302-01	12/13/2012 1407	94	92	93
L12121302-01	12/14/2012 1539	125		
L12121302-02	12/13/2012 1434	94	92	92
L12121302-02	12/14/2012 1605	117		
L12121302-03	12/13/2012 1341	96	92	96
L12121302-04	12/13/2012 1500	96	93	97
L12121302-04	12/14/2012 1216	107		
L12121302-05	12/13/2012 1526	94	92	92
L12121302-05	12/14/2012 1241	111		
L12121302-06	12/13/2012 1552	97	94	96
MB63907:1	12/13/2012 1033	99	98	100
MB63907:2	12/14/2012 0927	108		
LCS63907:1	12/13/2012 1921	95	92	95
LCS63907:2	12/14/2012 1630	116		
MS12121002-19:63907	12/13/2012 1737	95	91	92
MSD12121002-19:63907	12/13/2012 1803	96	93	95

DCA - 1,2-DICHLOROETHANE-D4

BFB - BROMOFLUOROBENZENE

TOL - TOLUENE-D8



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : January 03, 2013

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## QC Batch Report - Method Blanks

WorkGroup: WG63907 Blank : MB63907:1

Units RDLResult Qual Parameter

Matrix : GW/ChemW

#### Volatile Organics

SW846 8260B

e/Time: 12/13/2012 1033 Analyst: JV	В	Di	ilution:	1	••••••
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5,00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5,00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5,00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHI ODOMERIIANE	<	10.0	U	10.0	ug/l
CHLOROMETHANE					



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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## QC Batch Report - Method Blanks

WorkGroup: WG63907 Blank : MB63907:1

Parameter		Result	Qua1	RDL	Units
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l
ETHYLBENZENE	<	5,00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5,00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		99	용	(74-140)	
Surr: BROMOFLUOROBENZENE		98	ક	(77-133)	
Surr: TOLUENE-D8		100	용	(77-131)	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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#### QC Batch Report - Method Blanks

WorkGroup: WG63907 Blank : MB63907:2

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

 Date/Time:
 12/14/2012
 0927
 Analyst:
 PAP
 Dilution:
 1

 CHLOROFORM
 <</td>
 5.00
 U
 5.00
 ug/l

Surr: 1,2-DICHLOROETHANE-D4 108 % (74-140)



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013 Page 21 of 50 Report ID: AL17

# QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63907

MS/MSD : MS12121002-19:63907

MSD12121002-19:63907

Matrix : GW/ChemW

Prep Method

	Spike	Sample	MS		MS	Limits
Parameter	Added	Conc	Conc	Units	%REC	%REC
1,1,1-TRICHLOROETHANE	50.00	< 5.00	47.88	ug/l	96	75-121
1,1,2,2-TETRACHLOROETHANE	50.00	< 5.00	49.54	ug/l	99	78-114
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	< 10.00	45.13	ug/l	90	64-130
1,1,2-TRICHLOROETHANE	50.00	< 5.00	48.92	ug/l	98	78-113
1,1-DICHLOROETHANE	50.00	< 5.00	47.77	ug/l	96	76-116
1,1-DICHLOROETHENE	50.00	< 5.00	46.53	ug/l	93	71-127
1,2,3-TRICHLOROBENZENE	50.00	< 5.00	44.82	ug/l	90	75-112
1,2,4-TRICHLOROBENZENE	50,00	< 5.00	44.71	ug/l	89	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	< 5.00	46.99	ug/l	94	73-124
1,2-DIBROMOETHANE	50.00	< 5.00	48.97	ug/l	98	79-114
1,2-DICHLOROBENZENE	50.00	< 5.00	51.45	ug/l	103	76-109
1,2-DICHLOROETHANE	50.00	< 5.00	48.41	ug/l	97	74-122
1,2-DICHLOROPROPANE	50.00	< 5.00	48.31	ug/l	97	79-113
1,3-DICHLOROBENZENE	50.00	< 5.00	50.82	ug/l	102	69-118
1,4-DICHLOROBENZENE	50.00	< 5.00	43.74	ug/l	87	74-108
2-BUTANONE	50.00	< 10.00	48.89	ug/l	98	68-134
2 - HEXANONE	50.00	< 10.00	49.76	ug/l	100	70-133
4-METHYL-2-PENTANONE	50.00	< 5.00	50.82	ug/l	102	69-135
ACETONE	50.00	< 10.00	55.59	ug/l	111	64-149
BENZENE	50.00	< 5.00	47.70	ug/l	95	77-114
BROMODICHLOROMETHANE	50.00	< 5.00	48.78	ug/l	98	76-123
BROMOFORM	50.00	< 5.00	48.77	ug/l	98	74-124
BROMOMETHANE	50.00	< 10.00	40.78	ug/l	82	64-121
CARBON DISULFIDE	50.00	< 5.00	37.03	ug/l	74	59-124
CARBON TETRACHLORIDE	50.00	< 5.00	46.84	ug/l	94	72-126
CHLOROBENZENE	50.00	< 5.00	52.83	ug/l	106	74-113
CHLOROETHANE	50.00	< 10.00	43.54	ug/l	87	71-121
CHLOROFORM	50.00	< 5.00	48.07	ug/l	96	76-119
CHLOROMETHANE	50.00	< 10.00	46.59	ug/l	93	59-123
CIS-1,2-DICHLOROETHENE	50.00	< 5.00	48.49	ug/l	97	74-118
CIS-1,3-DICHLOROPROPENE	50.00	< 5.00	51.06	ug/l	102	83-125
CYCLOHEXANE	50.00	< 5.00	44.46	ug/l	89	59-126
DIBROMOCHLOROMETHANE	50.00	< 5.00	49.70	ug/l	99	77-121
DICHLORODIFLUOROMETHANE	50.00	< 5.00	43.20	ug/l	86	53-141
ETHYLBENZENE	50.00	< 5.00	46.87	ug/l	94	70-130
ISOPROPYL BENZENE	50.00	< 5.00	52.09	ug/l	104	74-114
METHYL ACETATE	50,00	< 10.00	50.16	ug/l	100	68-122
METHYL-TERT-BUTYL ETHER	50.00	< 5.00	48.55	ug/l	97	74-119



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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# QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63907

MS/MSD : MS12121002-19:63907

MSD12121002-19:63907

Matrix

: GW/ChemW

Prep Method

	Spike	Sample	MS		MS	Limits
arameter	Added	Conc	Conc	Units	%REC	%rec
METHYLCYCLOHEXANE	50.00	< 5.00	45.08	ug/l	90	61-126
ETHYLENE CHLORIDE	50.00	< 5.00	46.19	ug/l	92	71-115
TYRENE	50.00	< 5.00	47.52	ug/l	95	75-116
CETRACHLOROETHENE	50.00	6.64	52.44	ug/l	92	69-121
OLUENE	50.00	< 5.00	47.19	ug/l	94	74-115
TRANS-1,2-DICHLOROETHENE	50.00	< 5.00	43.52	ug/l	8 <b>7</b>	74-119
RANS-1,3-DICHLOROPROPENE	50.00	< 5.00	45.96	ug/l	92	73-112
TRICHLOROETHENE	50.00	< 5.00	47.11	ug/l	94	74-120
TRICHLOROFLUOROMETHANE	50.00	< 5.00	49.06	ug/l	98	70-134
INYL ACETATE	50,00	< 10.00	50.29	ug/l	101	59-146
/INYL CHLORIDE	50.00	< 10.00	43.05	ug/l	86	63-124
(YLENE (TOTAL)	150.0	< 5.00	152.1	ug/l	1.01	73-116

	Spike	MSD		MSD		Limit	s
Parameter	Added	Cond	Units	%REC	%RPD	%RPD	%REC
1,1,1-TRICHLOROETHANE	50.00	48.56	ug/l	97	1	16	75-121
1,1,2,2-TETRACHLOROETHANE	50.00	49.86	ug/l	100	1	18	78-114
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	46.82	ug/l	94	4	18	64-130
1,1,2-TRICHLOROETHANE	50.00	49.62	ug/l	99	1	14	78-113
1,1-DICHLOROETHANE	50.00	48.47	ug/l	97	1	15	76-116
1,1-DICHLOROETHENE	50.00	47.14	ug/l	94	1	16	71-127
1,2,3-TRICHLOROBENZENE	50.00	47.55	ug/l	95	6	20	75-112
1,2,4-TRICHLOROBENZENE	50.00	46.98	ug/l	94	5	18	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	51.19	ug/l	102	9	20	73-124
1,2-DIBROMOETHANE	50,00	49.84	ug/l	100	2	16	79-114
1,2-DICHLOROBENZENE	50.00	52.50	ug/l	105	2	15	76~109
1,2-DICHLOROETHANE	50.00	48.68	ug/l	97	1	16	74-122
1,2-DICHLOROPROPANE	50.00	49.24	ug/l	98	2	15	79-113
1,3-DICHLOROBENZENE	50.00	52.30	ug/l	105	3	17	69-118
1,4-DICHLOROBENZENE	50.00	45.91	ug/l	92	5	16	74-108
2 - BUTANONE	50.00	51.12	ug/l	102	4	20	68-134
2-HEXANONE	50.00	52.63	ug/l	105	6	20	70-133
4~METHYL-2~PENTANONE	50.00	52.04	ug/l	104	2	19	69-135
ACETONE	50.00	58.85	ug/l	118	6	23	64-149
BENZENE	50.00	48.45	ug/l	97	2	15	77-114
BROMODICHLOROMETHANE	50.00	49.54	ug/l	99	2	16	76-123
BROMOFORM	50.00	49.52	ug/l	99	2	17	74-124
BROMOMETHANE	50.00	44.66	ug/l	89	9	22	64-121



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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# QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63907

MS/MSD : MS12121002-19:63907

MSD12121002-19:63907

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike	MSD		MSD		Limi	ts
Parameter	Added	Conc	Units	%REC	%RPD	%RPD	%REC
CARBON DISULFIDE	50.00	39.93	ug/l	80	8	21	59-124
CARBON TETRACHLORIDE	50.00	48.37	ug/l	97	3	18	72-126
CHLOROBENZENE	50.00	53.82	ug/l	108	2	15	74-113
CHLOROETHANE	50.00	45.10	ug/1	90	4	17	71-121
CHLOROFORM	50.00	48.32	ug/l	97	1	14	76-119
CHLOROMETHANE	50.00	46.74	ug/l	93	0	18	59-123
CIS-1,2-DICHLOROETHENE	50.00	49.27	ug/l	99	2	15	74-118
CIS-1,3-DICHLOROPROPENE	50.00	52.78	ug/l	106	3	16	83-125
CYCLOHEXANE	50.00	45.44	ug/l	91	2	17	59-126
DIBROMOCHLOROMETHANE	50.00	50.99	ug/l	102	3	16	77-121
DICHLORODIFLUOROMETHANE	50.00	43.56	ug/l	87	1	20	53-141
ETHYLBENZENE	50.00	47.78	ug/l	96	2	20	70-130
ISOPROPYL BENZENE	50.00	53.67	ug/l	107	3	17	74-114
METHYL ACETATE	50.00	51.29	ug/1	103	2	19	68-122
METHYL-TERT-BUTYL ETHER	50.00	49.25	ug/l	99	1	16	74-119
METHYLCYCLOHEXANE	50.00	46.80	ug/l	94	4	16	61-126
METHYLENE CHLORIDE	50.00	46.56	ug/l	93	1	17	71-115
STYRENE	50.00	48,25	ug/l	97	2	17	75-116
TETRACHLOROETHENE	50.00	54.48	ug/l	96	4	16	69-121
TOLUENE	50.00	48.42	ug/l	97	3	15	74-115
TRANS-1,2-DICHLOROETHENE	50.00	44.90	ug/l	90	3	16	74-119
TRANS-1,3-DICHLOROPROPENE	50.00	46.98	ug/l	94	2	16	73-112
TRICHLOROETHENE	50.00	49.26	ug/l	99	4	15	74-120
TRICHLOROFLUOROMETHANE	50.00	50.02	ug/l	100	2	18	70-134
VINYL ACETATE	50.00	51.58	ug/l	103	3	19	59-146
VINYL CHLORIDE	50.00	43.54	ug/l	87	1	16	63-124
XYLENE (TOTAL)	150.0	154.6	ug/l	103	2	17	73-116

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

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# QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63907

LCS : LCS63907:1

1002000 1

Matrix

: GW/ChemW

Prep Method

				+ 44	Limits	
	Spike	LCS		LCS %REC	%REC	
Parameter	Added	Conc	Units	97	76-120	
1,1,1-TRICHLOROETHANE	50.00	48.61	ug/l	99	78-116	
1,1,2,2-TETRACHLOROETHANE	50.00	49.71	ug/l	90	65-125	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	45.04	ug/l	98	78-117	
1,1,2-TRICHLOROETHANE	50.00	48.95	ug/l		75-117	
1,1-DICHLOROETHANE	50.00	48.18	ug/l	96	72-125	
1,1-DICHLOROETHENE	50.00	46.90	ug/l	94	75-113	
1,2,3-TRICHLOROBENZENE	50.00	46.88	ug/l	94	76-114	
1,2,4-TRICHLOROBENZENE	50.00	46.83	ug/l	94		
1,2-DIBROMO-3-CHLOROPROPANE	50.00	49.83	ug/l	100	77-122	
1,2-DIBROMOETHANE	50.00	49.30	ug/l	99	80-116	
1,2-DICHLOROBENZENE	50.00	53.43	ug/l	107	76-110	
1,2-DICHLOROETHANE	50.00	48.80	ug/l	98	75-121	
1,2-DICHLOROPROPANE	50.00	48.53	ug/l	97	79-115	
1,3-DICHLOROBENZENE	50.00	53.18	ug/l	106	74-113	
1,4-DICHLOROBENZENE	50.00	46.20	ug/l	92	74-109	
2-BUTANONE	50.00	52.16	ug/l	104	72-129	
2-HEXANONE	50.00	52.65	ug/l	105	73-132	
4-METHYL-2-PENTANONE	50.00	53.52	ug/l	107	75-131	
ACETONE	50.00	59.68	ug/l	119	70-138	
BENZENE	50.00	47.97	ug/l	96	77-116	
BROMODICHLOROMETHANE	50.00	49.06	ug/l	98	79-120	
BROMOFORM	50.00	50.34	ug/l	101	79-121	
BROMOMETHANE	50.00	43.89	ug/l	88	67-122	
CARBON DISULFIDE	50.00	39.93	ug/l	80	59-125	
CARBON TETRACHLORIDE	50.00	47.73	ug/l	95	74-124	
CHLOROBENZENE	50.00	53.67	ug/l	107	75-113	
CHLOROETHANE	50.00	44.18	ug/l	88	73-120	
CHLOROFORM	50.00	48.43	ug/l	97	75-121	
CHLOROMETHANE	50.00	46.11	ug/l	92	60-122	
CIS-1,2-DICHLOROETHENE	50.00	46,51	ug/l	93	74-119	
CIS-1,3-DICHLOROPROPENE	50.00	51.69	ug/l	103	83-126	
CYCLOHEXANE	50.00	44.20	ug/l	88	60-123	
DIBROMOCHLOROMETHANE	50.00	49.51	ug/l	99	779-121	
DICHLORODIFLUOROMETHANE	50.00	41.91	ug/l	84	55-139	
ETHYLBENZENE	50.00	48.06	ug/l	96	70-130	
ISOPROPYL BENZENE	50.00	53.69	ug/l	107	74-113	
METHYL ACETATE	50,00	51.41	ug/l	103	67-123	
METHYL-TERT-BUTYL ETHER	50.00	49.34	ug/l	99	75-120	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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# QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63907

: LCS63907:1

Matrix

: GW/ChemW

Prep Method

	Spike	LCS		LCS	Limits
Parameter	Added	Conc	Units	%REC	%rec
METHYLCYCLOHEXANE	50.00	44.76	ug/l	90	62-123
METHYLENE CHLORIDE	50.00	46.55	ug/l	93	70-120
STYRENE	50.00	48.71	ug/l	97	78-113
TETRACHLOROETHENE	50.00	47.40	ug/l	95	70-120
TOLUENE	50.00	47.93	ug/l	96	75-116
TRANS-1,2-DICHLOROETHENE	50.00	45.02	ug/l	90	73-121
TRANS-1,3-DICHLOROPROPENE	50.00	46.52	ug/l	93	73-114
TRICHLOROETHENE	50.0 <b>0</b>	47.70	ug/l	95	75-119
TRICHLOROFLUOROMETHANE	50.00	49.13	ug/l	98	71-128
VINYL ACETATE	50.00	50.07	ug/l	100	65-142
VINYL CHLORIDE	50.00	43.32	ug/l	87	64-122
XYLENE (TOTAL)	150.0	155.2	ug/l	103	73-116



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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# QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63907

LCS

: LCS63907:2

Matrix

: GW/ChemW

Prep Method

	Spike	LCS Conc	Units	LCS %REC	Limits %REC	
Parameter CHLOROFORM	50.00	56.64	ug/l	113	75-121	



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Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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## QC Batch Report - Batch Sample List

WorkGroup : WG63970
Description: WC/NO3NO2(5)

Matrix : GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
	m10 00 05	1		12/19/2012 1642	LVICKERY	1
L12121302-01 L12121302-02	D12-28-87 D12-28-66	1		,	LVICKERY	1
L12121302-04	D12-27-75	1		12/19/2012 1647	LVICKERY	1
L12121302-05	D12-27-61	1		12/19/2012 1649	LVICKERY	1
L12121302-06	D12-29-50	1		12/19/2012 1652	LVICKERY	1
MB63970:1	Method Blank	1		12/19/2012 1639	LVICKERY	1
LCS63970:1	Laboratory Control Spike	1		12/19/2012 1637	LVICKERY	1
MS12121401-01:63970	Matrix Spike	1		12/19/2012 1656	LVICKERY	1
MS12121904-01:63970	Matrix Spike	1		12/19/2012 1726	LVICKERY	2
MSD12121401-01:63970	Matrix Spike Duplicate	1		12/19/2012 1659	LVICKERY	1
MSD12121904-01:63970	Matrix Spike Duplicate	1		12/19/2012 1728	LVICKERY	2



SC Certification Number: 24110001

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## QC Batch Report - Method Blanks

WorkGroup: WG63970 : MB63970:1 Blank

Parameter

Result

Qual

Matrix : GW/ChemW

Wet Chemistry

EPA 353.2 Date/Time: 12/19/2012 1639 Analyst: LVICKERY 0.0200 mg/l 0.0200 U NITRATE + NITRITE NITROGEN (AS N)



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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## QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63970

MS/MSD : MS12121401-01:63970

MSD12121401-01:63970

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
NITRATE + NITRITE NITROGEN (AS N)	0.500	0.942	1.43	mg/l	97	90-110
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
NITRATE + NITRITE NITROGEN (AS N)	0.500	1.42	mg/l	96	0	10 90-110

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

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# QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63970

MS/MSD : MS12121904-01:63970

MSD12121904-01:63970

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

	Spike	Sample	MS		MS	Limits
Parameter	Added	Conc	Conc	Units	%REC	%REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	1.73	2.66	mg/l	93	90-110
	Spike	MSD		MSD		Limits
Parameter	Added	Conc	Units	%REC	%RPD	%RPD %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	2.66	mg/l	93	0	10 90-110

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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# QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63970 LCS

: LCS63970:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	LCS Conc		lcs %rec	
NITRATE + NITRITE NITROGEN (AS N)	0.500	0.498	mg/l	100	90-110



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

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Contact : BRYON DAHLGREN

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## QC Batch Report - Batch Sample List

WorkGroup : WG64020

Description: Total Alkalinity

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12121302-01	D12-28-87	1		12/18/2012 1435	CDC	1
L12121302-02	D12-28-66	1		12/18/2012 1442	CDC	1
D12121002-11:64020	Duplicate	1		12/18/2012 1056	CDC	1
D12121002-20:64020	Duplicate	1		12/18/2012 1423	CDC	1
MB64020:1	Method Blank	1		12/18/2012 0850	CDC	1
LCS64020:1	Laboratory Control Spike	1		12/18/2012 0901	CDC	1



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Contact : BRYON DAHLGREN

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## QC Batch Report - Method Blanks

WorkGroup: WG64020 Blank : MB64020:1

RDLUnits Result Qual Parameter

Matrix : GW/ChemW

Wet Chemistry

SM 2320B

Dilution: 1 Date/Time: 12/18/2012 0850 Analyst: CDC mg/l 1.00 ALKALINITY, TOTAL 1.00 su ENDPOINT PH 4.20



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Client : AECOM

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## QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG64020

LCS : LCS64020:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Spike Added	LCS Conc	Units	LCS %REC	
ALKALINITY, TOTAL	1000	1035	mg/l	104	90-110



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Client : AECOM

1455 OLD ALABAMA RD.

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Contact : BRYON DAHLGREN

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## QC Batch Report - Sample Duplicates

WorkGroup: WG64020

Duplicate: D12121002-11:64020

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Sample Conc			Units		
ALKALINITY, TOTAL	34.34	34.34	1.00	mg/l	0	10

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

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Contact : BRYON DAHLGREN

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## QC Batch Report - Sample Duplicates

WorkGroup: WG64020

Duplicate: D12121002-20:64020

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

000000000000000000000000000000000000000		variation of the first contract of the second	RDL	Units	%RPD	RPD
ALKALINITY, TOTAL	62.53	63.55	1.00	mg/l	2	10

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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## QC Batch Report - Batch Sample List

WorkGroup : WG64021

Description: Total Alkalinity

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
T-12121302-04	D12-27-75	1		12/18/2012 1549	CDC	1
L12121302-05	D12-27-61	1		12/18/2012 1604	CDC	1
1.12121302-06	D12-29-50	1		12/18/2012 1609	CDC	1
D12121302-04:64021	Duplicate	1		12/18/2012 0553	CDC	1
D12121401-01:64021	Duplicate	1		12/18/2012 1623	CDC	1
MB64021:1	Method Blank	1		12/18/2012 1457	CDC	1
LCS64021:1	Laboratory Control Spike	1		12/18/2012 1541	CDC	1



SC Certification Number: 24110001

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Contact : BRYON DAHLGREN

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## QC Batch Report - Method Blanks

WorkGroup: WG64021 : MB64021:1 Blank

Parameter

Result

Qual

 $\mathtt{RDL}$ 

Units

Matrix : GW/ChemW

Wet Chemistry

SM 2320B

Date/Time: 12/18/2012 1457 ALKALINITY, TOTAL

Analyst: CDC

Dilution: 1

1.00

mg/l

ENDPOINT PH

1.00 4.20

su



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

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Contact : BRYON DAHLGREN

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# QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG64021

LCS : LCS64021:1 Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Spike Added			LCS %REC	
ALKALINITY, TOTAL	1000	1005	mg/l	100	90-110



SC Certification Number: 24110001

Client : AECOM

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## QC Batch Report - Sample Duplicates

WorkGroup: WG64021

Duplicate: D12121302-04:64021

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

	Sample Conc	DUP Conc	RDL	Units	%RPD	RPD	
Parameter	conc	conc	YDP.	UUILD	**************************************		(00000000000000000000000000000000000000
ALKALINITY, TOTAL	56.38	55.35	2,00	mg/l	2	10	

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



SC Certification Number: 24110001

Client : AECOM

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## QC Batch Report - Sample Duplicates

WorkGroup: WG64021

Duplicate: D12121401-01:64021

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Sample Conc	DUP Cond	RDL	Units	%RPD	RPD	
ALKALINITY, TOTAL	27,16	27.16	1.00	mg/l	0	10	

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

Page 42 of 50 Report ID: AL17

## QC Batch Report - Batch Sample List

WorkGroup : WG64022 Description: Sulfide

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12121302-01	D12-28-87	1		12/17/2012 1146	CDC	1
L12121302-02	D12-28-66	1		12/17/2012 1147	CDC	1
L12121302-04	D12-27-75	1		12/17/2012 1148	CDC	1
L12121302-05	D12-27-61	1		12/17/2012 1149	CDC	1
L12121302-06	D12-29-50	1		12/17/2012 1150	CDC	1
MB64022:1	Method Blank	1		12/17/2012 1158	CDC	1
LCS64022:1	Laboratory Control Spike	1		12/17/2012 1145	CDC	1
MS12121401-01:64022	Matrix Spike	1		12/17/2012 1152	CDC	1
MS12121701-05:64022	Matrix Spike	1		12/17/2012 1202	CDC	1
MSD12121401-01:64022	Matrix Spike Duplicate	1		12/17/2012 1152	CDC	1
MSD12121701-05:64022	Matrix Spike Duplicate	1		12/17/2012 1203	CDC	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

Page 43 of 50 Report ID: AL17

## QC Batch Report - Method Blanks

WorkGroup: WG64022 Blank : MB64022:1

Parameter

Result

0.0500 U

Qual

Units

Matrix : GW/ChemW

Wet Chemistry

SM 4500-S2-D

Date/Time: 12/17/2012 1158

Analyst: CDC

Dilution: 1

0.0500

mg/l

SULFIDE, TOTAL



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

Page 44 of 50 Report ID: AL17

# QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG64022

MS/MSD : MS12121401-01:64022

MSD12121401-01:64022

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

	Spike	Sample	MS		MS	Limits	
Parameter	Added	Conc	Conc	Units	%REC	%REC	
SULFIDE, TOTAL	0.500	< 0.0500	0.471	mg/l	94	81-121	
							56865555566666666
	Spike	MSD		MSD		Limits	
Parameter	Added	Conc	Units	%REC	%RPD	%RPD %REC	
SULFIDE, TOTAL	0.500	0.468	mg/l	94	1	10 81-121	

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

Page 45 of 50 Report ID: AL17

## QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG64022

MS/MSD : MS12121701-05:64022

MSD12121701-05:64022

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC	
SULFIDE, TOTAL	0.500	< 0.0500	0.468	mg/l	94	81-121	
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC	
SULFIDE, TOTAL	0.500	0.452	mg/l	90	4	10 81-121	

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

Page 46 of 50 Report ID: AL17

# QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG64022

Matrix

: GW/ChemW

: LCS64022:1 LCS

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added		Units	LCS %REC	Limits %REC
SULFIDE. TOTAL	0.500	0.458	mg/l	92	90-110



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

Page 47 of 50 Report ID: AL17

## QC Batch Report - Batch Sample List

WorkGroup : WG63901 Description: IC-GW

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

			PREP	ANALYTICA	L	
Sample ID	Client ID	Run#	Date Time	Date Tim	e Analyst	Dilution
L12121302-01	D12-28-87	1		12/13/2012 100	8 CDC	1
1,12121302-02	D12-28-66	1		12/13/2012 083	7 CDC	1
L12121302-04	D12-27-75	1		12/13/2012 103	9 CDC	1
L12121302-05	D12-27-61	1		12/13/2012 111	0 CDC	1
T ₁ 12121302-06	D12-29-50	1		12/13/2012 141	3 CDC	1
MB63901:1	Method Blank	1		12/13/2012 121	1 CDC	1
LCS63901:1	Laboratory Control Spike	1		12/13/2012 124	1 CDC	1
MS12121302-06:63901	Matrix Spike	1		12/13/2012 144	4 CDC	1
MSD12121302-06:63901	Matrix Spike Duplicate	1		12/13/2012 151	4 CDC	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

Page 48 of 50 Report ID: AL17

## QC Batch Report - Method Blanks

WorkGroup: WG63901 Blank : MB63901:1

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Wet Chemistry SW846 9056A

Date/Time: 12/13/2012 1211 Analyst: CDC Dilution: 1

SULFATE < 1.00 U 1.00 mg/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013 Page 49 of 50 Report ID: AL17

# QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63901

MS/MSD : MS12121302-06:63901

MSD12121302-06:63901

Matrix : GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

:Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
SULFATE	10.00	< 1.00	9.87	mg/l	99	80-120
	Spike	MSD _		MSD	anna anna	Limits %RPD %REC
Parameter SULFATE	Added 10.00	Conc 9.95	Units mg/l	<b>%REC</b> 99	1	15 80-120

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

Page 50 of 50 Report ID: AL17

## QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63901

LCS

: LCS63901:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

Parameter	Spike Added	LCS Conc	Units	LCS %REC	Limits %rEC
SULFATE	10.00	9.76	mg/l	98	80-120



#### **Explanation of Symbols and Abbreviations**

The following defines common symbols and abbreviations used in reporting technical data:

RDL	Report Detection Limit	MDL	Method Detection Limit
PQL	Practical Quantitation Limit	DL	Detection Limit
LOQ	Limit of Quantitation	LOD	Limit of Detection
SQL	Sample Quantitation Limit	TIC	Tentatively Identified Compound
C	Degrees Centigrade	F	Degrees Fahrenheit
•	·		•

umhos/cm micromhos/cm meq milliequivalents su Standard Units

mg/l, mg/kg Units of concentration in milligrams per liter for liquids and milligrams per kilogram for solids. Also

referred to as Parts Per Million or "ppm".

ug/l, ug/kg Units of concentration in micrograms per liter for liquids and micrograms per kilograms for solids.

Also referred to as Parts Per Billion or "ppb".

Less ThanGreater Than

Solid samples (i.e. soil, sludge, and solid waste) are reported on an as received basis unless otherwise noted.

#### Data Qualifiers:

- **B** Analyte also detected in the method blank.
- C Amendable Cyanide is a negative value due to an unknown interference.
- F Surrogate Standard Recovery exceeds the laboratory established acceptance limits.
- J The reported result is an estimated value (eg matrix interference observed or concentration outside the quantitation range.
- N Non-target analyte. The analyte is TIC (using mass spectrometry).
- P Concentration difference between primary and confirmation columns >40%.
- Q One or more quality control criteria failed (e.g., LCS recovery, surrogate spike recovery or CCV
- U Final concentration is below the detection limit.
- * Defined in report comments.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or biological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of the material involved, the test results will be meaningless. If you have any questions regarding the proper techniques of collecting samples, please contact us. However, we cannot be held responsible for sample integrity unless sampling has been performed by a member of our staff.

<u>REPRESENTATION AND LIMITATION OF LIABILITY</u> – The accuracy of all analytical results for samples begins as it is received by the laboratory. Integrity of the sample begins at the time it is placed in the possession of authorized Davis & Floyd, Inc. Laboratories personnel. All other warranties, expressed or implied, are disclaimed. Liability is limited to the cost of the analysis.



# Chain of Custody Record

Laboratory Certification Numbers: SC - 24110, NC - 25, NELAP - E87633, TN - 2923, VA - 77  816 E. Durst Avenue, Greenwood, SC 29649 (864) 229-4413 Fax: (864) 229-7119  Email: Laboratory@davisfloyd.com Internet: www.davisfloyd.com    Reporting Requirements: [ ] Standard [ ] Data Package (Specify Level: 1 2 3 4)   PO / Quote Number			כוומווו טו כעאנטעץ מפרטוע	Page or	
Mark Hartford   Auriga Polymers - Sptbg, SC   Seption   Special Instructions   Seption   Special Instructions	Client	Project / Site Location		Office Use Only	
Auriga Polymers - Sptbg, SC    Report To   Reporting Requirements: [] Standard [] Data Package (Specify Level: 1 2 3 4)   PO/Quote Number	AECOM	061576.07	63	Laboratory Work Request	
Almospheric Conditions  NOTICE:  Report To  Bryon Dahlgren  Almospheric Conditions  Opp To  Reporting Requirements: [] Standard [] Data Package (Specify Level: 1 2 3 4)  Follow Poly To  Reporting Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly To  Reporting Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  To Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  To Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  To Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  To Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  To Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  To Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  To Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  To Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  To Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  To Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  To Turnaround Requirements: [] Standard [] Rush (Specify Level: 1 2 3 4)  Follow Poly Quote Number  To Turnaround Requirem	7	Auriga Polymers - Sptbg, SC			
Atmospheric Conditions  NOTICE:  Composite	Contact	Report To	Reporting Requireme	PO / Quote Number	70
NOTICE:  Composite  Composite  Composite  Composite  Composite  Composite  NOTICE:  Composite  Composite  Containers  Sampling  Only  Composite   Mark Hartford	Bryon Dahlgren	Tumaround Requirements: [ ] Standard [ ] Rush (Specify:)		0	
Composite  Composite  Composite  Composite  Containers  RS CONTAINER  At 8260 TFE  By, NO2 500 P  125 P  7 125 P  SIM 3x40 G TFE  TFE  TFE  Tree   Collected By		Required Parameters, Containers and Preservatives (P*)	Special Instructions	State	
Composite  Composite  Sampling  ontainers  RS  ontainers  refs  ontainers  ref			expected	·	
	NOTICE:	Composite Sampling Only	Containers  IRS  od 8260  lity, NO2  SIM		<u> 130</u> 2

Matrix Type Definitions 1 - Drinking Water			Comments	12:17y	Received By Date	Milas Joseph 12-12-12	Relinquished By Date			The state of the s	1 4 P (m. p.)				712-24-50		012-27-61	D12-27-75	MW-200	D12-28-66	D12-28-87	Sample Description		NOTICE:	Mark Hartford	Collected By	
2 - Clean Water 5 - Groundwater 7 - Soil				14/36)	<u>.                                    </u>										12-12-12 1130		12-11-1645	12-11-12 1255	17-Ind 10%0	T	120 12 120%	Time Date Time	Sampling Only Date Initiated Sample Collection	Composite			
7 - Soil/Sediment 8 - Liquid Shidge 9 - Oil 1:		Circle:	Sampl Temp.		Date	21-21-21	Date		<b>?</b>	ENT	ERN	UMBI	ER O	SAN	X V O MPLE	COL	X V & JTAIN!	T	<u> </u>		× 50	Type  Total  e	Composite  Grab  Matrix Type  Number of Containe  PARAMETERS  VOC's Method 8260	ers	(Optional)  CONTAINER 3x40 G TFE	Atmospheric Conditions	
12 - Air	Start Date:	C or F	Sample Chamber   Flow Measurement (Note 1) Temp. at Harvest   Beginning	Sel.		2/0	Time Relinquished By	-														E,G	SO4, Alkalinity, NO2 Sulfide NO3 / A/ 0 7 12-13-17   194/		125 P	Required Paramete	i dilidi dalla i todani circo
(Note 1) For Discharge Measurements			ent (Note 1) Time	2. M. (811/2.12.10)	Laboratory By Date		Date															C	1,4-Dioxane SIM		3x40 G TFE	Required Parameters, Containers and Preservatives (P*)	ro. L. Jordinana L. J. raou (obcon).
i cach i i c.	not have adequate	for those shipments on loe:	Note:Indicate  Immediate delivery   Coole	1/10	Time	UPS	Time															НОТ	Indicate any know hazards wit				
Custody Seal: Intact / Broken / Nofe	Immediate Del	e: Yest No Temp(C) 4	Receipt Information · Cooler ID (if available):		Tracking Number	UPS FEDEX CLIENT COURIER OTHER	Shipped Via								06		05	40	03	02	10	Comments Fraction	L/21213(	72	LOGIN	Special Instructions State	

Matrix Type Definitions 1-Drinking Water 2-Clean Water 5-Groundwater 7-Soll/Sediment 8-Liquid Studge 9-Oil 12-Air (P) Preservative Definitions A-None 8-H2SO4 C-HCI D-HNO3 E-NaOH F-Filtered G-Zn Acetate

(Note 1) For Discharge Measurements

ime to reach 40. Custody Seal: Intact / Broken / Note)

Davis & Floyd, Inc.

FL02_03 (04/10)



January 03, 2013

**BRYON DAHLGREN** AECOM 1455 OLD ALABAMA RD. **SUITE 170** ROSWELL, GA 30076

Report ID: AL18 Page 1 of 43

Login Number

:L12121401

Project Number

:61576.08

Description

:AURIGA POLYMERS - SPARTANBURG, SC

#### Dear Bryon Dahlgren:

We are pleased to provide the enclosed analytical results for the samples received by Davis & Floyd, Inc. on December 13, 2012.

A formal Quality Assurance/Quality Control program is maintained by Davis & Floyd, which is designed to meet or exceed the ISO/IEC 17025, EPA, NELAP or other appropriate regulatory requirements. All analytical analyses for this project met QA/QC criteria and the results are within the 99% confidence interval for each method unless otherwise stated in the footnotes. This report is to be reproduced only in full.

Feel free to contact our Client Services Representative at (864) 229-4413 if further explanation of the analysis is required. Unless other arrangements have been made, samples will be disposed of or returned 14 days from the date of the report. We appreciate the opportunity to provide services to your firm.

Sincerely, DAVIS & FLOYD, INC.

Љhn Н. McCord, Ír. Laboratory Manager

This report conatins a TOTAL of \$15 pages, including attachments.

Initials



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Page 2 of 43

Report Date : January 03, 2013

Report ID: AL18

#### Certificate of Analysis Report

Client ID	Date Collected	Date Received	
D12-29-41 MS/MSD	12/12/2012 1440	12/13/2012	
D12-29-00	12/12/2012 1500	12/13/2012	
MW-200	12/12/2012 1510	12/13/2012	
D12-30-50	12/13/2012 0935	12/13/2012	
D12-30-20	12/13/2012 1020	12/13/2012	
	D12-29-41 MS/MSD D12-29-00 MW-200 D12-30-50	D12-29-41 MS/MSD 12/12/2012 1440 D12-29-00 12/12/2012 1500 MW-200 12/12/2012 1510 D12-30-50 12/13/2012 0935	D12-29-41 MS/MSD 12/12/2012 1440 12/13/2012 D12-29-00 12/12/2012 1500 12/13/2012 MW-200 12/12/2012 1510 12/13/2012 D12-30-50 12/13/2012 0935 12/13/2012

This data report has been prepared and reviewed in accordance with standard operating procedures. Test results relate only to the sample tested.

Please direct any questions to your Project Manager.

Reviewed by

Laboratory Manager



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : January 03, 2013

Page 3 of 43 Report ID: AL18

## Certificate of Analysis

Client ID: D12-29-41 MS/MSD

Date Collected: 12/12/2012 1440

Sample ID: L12121401-01

Date Received : 12/13/2012

Parameter

Result

Qual

Units

Matrix : GW/ChemW

#### Volatile Organics

SW846 8260B

Date/Time: 12/17/2012 1743 Analyst: J	VB	D	)ilutic	on: 1	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5,00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5,00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM		5.83		5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5,00	ug/l
CYCLOHEXANE	<	5.00	U	5,00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5,00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SW846 9056A

SULFATE

Date/Time: 12/14/2012 1644

## LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

Page 4 of 43 Report ID: AL18

## Certificate of Analysis

Client ID: D12-29-41 MS/MSD Sample ID: L12121401-01

Date Collected: 12/12/2012 1440

Date Received : 12/13/2012

Parameter		Result	Qual	RDL	Units	
ETHYLBENZENE	<	5.00	U	5,00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	Ū	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		105	9	(74-140)		
Surr: BROMOFLUOROBENZENE		107	용	(77-133)		
Surr: TOLUENE-D8		105	용	(77-131)		
Chemistry						
353.2						
ate/Time: 12/19/2012 1654			Dilutio.		/ 7	
NITRATE + NITRITE NITROGEN (	AS N)	0.942		0.0200	mg/l	
2320B						
ate/Time: 12/18/2012 1615	Analyst: CDC		Dilutio.		/ 7	
ALKALINITY, TOTAL		27.2		1.00	mg/l	
ENDPOINT PH		4.50			su	
4500-S2-D				-		
ate/Time: 12/17/2012 1151	Analyst: CDC		Dilutio.			
SULFIDE, TOTAL	<	0.0500	U	0.0500	mg/l	

Analyst: CDC



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

Page 5 of 43 Report ID: AL18

## Certificate of Analysis

Client ID: **D12-29-00**Sample ID: L12121401-02

Date Collected: 12/12/2012 1500

Date Received : 12/13/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

#### Volatile Organics

SW846 8260B

Time: 12/17/2012 1809 Analyst	; JVB	Di	lution:	. 1	***************************************
,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
,1,2-TRICHLORO-1,2,2-TRIFLUOROETHA	NE <	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5,00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U.	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	υ	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	U	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM		5.81		5,00	ug/l
CHLOROMETHANE	<	10.0	Ü	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	Ū	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5,00	ug/1
CYCLOHEXANE	<	5.00	Ū	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SW846 9056A

SULFATE

Date/Time: 12/14/2012 1815

## LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

Contact : BRYON DAHLGREN

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Report Date : January 03, 2013

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## Certificate of Analysis

Client ID: D12-29-00 Sample ID: L12121401-02 Date Collected: 12/12/2012 1500

Date Received : 12/13/2012

Parameter			Result	Qual	RDL	Units	
			= 00		F 00	uq/l	
ETHYLBENZENE		<	5.00	U	5.00	5.	
ISOPROPYL BENZENE		<	5.00	U	5.00	ug/l	
METHYL ACETATE		<	10.0	Ŭ	10.0	ug/l	
METHYL-TERT-BUTYL ETHER		<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE		<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE		<	5.00	U	5.00	ug/l	
STYRENE		<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE		<	5.00	U	5.00	ug/l	
TOLUENE		<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE		<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE		<	5.00	U	5.00	ug/l	
TRICHLOROETHENE		<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE		<	5.00	U	5.00	ug/l	
VINYL ACETATE		<	10.0	U	10.0	ug/l	
VINYL CHLORIDE		<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)		<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4			103	웅	(74-140)		
Surr: BROMOFLUOROBENZENE			106	ક	(77-133)		
Surr: TOLUENE-D8			105	왕	(77-131)		
t Chemistry							
A 353.2							
Date/Time: 12/19/2012 1701	Analyst:	LVICKERY		Dilution	1: 1		
NITRATE + NITRITE NITROGEN	(AS N)		0.945		0.0200	mg/l	
1 2320B							
Date/Time: 12/18/2012 1627	Analyst:	CDC		Dilution	1: 1	*********	
ALKALINITY, TOTAL			32.8		1.00	mg/l	
ENDPOINT PH			4.50			su	
1 4500-S2-D							
Date/Time: 12/17/2012 1153	Analyst:	CDC		Dilution	1: 1		
SULFIDE, TOTAL		<	0.0500	U	0.0500	mg/l	

Analyst: CDC

Dilution: 1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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## Certificate of Analysis

Client ID: MW-200

Sample ID: L12121401-03

Date Collected: 12/12/2012 1510

Date Received : 12/13/2012

Parameter

Result

Qua1

RDL

Units

Matrix : GW/ChemW

#### Volatile Organics

SW846 8260B

Date/Time: 12/17/2012 1835 Analyst: J	VB	Di	ilutio	on: 1	*********	
1,1,1-TRICHLOROETHANE	<	5.00	Ū	5.00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5,00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	Ū	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5.00	U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	Ū	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM	<	5.00	U	5.00	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
CYCLOHEXANE	<	5.00	U	5.00	ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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## Certificate of Analysis

Client ID: MW-200 Sample ID: L12121401-03 Date Collected: 12/12/2012 1510

Date Received : 12/13/2012

Parameter		Result	Qual	RDL	Units
ETHYLBENZENE	<	5.00	U	5,00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.,00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		107	용	(74-140)	
Surr: BROMOFLUOROBENZENE		108	응	(77-133)	
Surr: TOLUENE-D8		108	음	(77-131)	



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : January 03, 2013 Page 9 of 43 Report ID: AL18

## Certificate of Analysis

Client ID: D12-30-50

Sample ID: L12121401-04

Date Collected: 12/13/2012 0935

Date Received : 12/13/2012

Parameter

Result Qual

RDL Units

Matrix : GW/ChemW

#### Volatile Organics

SW846 8260B

Date/Time: 12/17/2012 1901 Analyst: JV	7B	D	ilution.	: 1		
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5.00	U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM		22.8		5,00	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
CYCLOHEXANE	<	5.00	U	5.00	ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l	



## LABORATORY ANALYSIS REPORT

SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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## Certificate of Analysis

Client ID: **D12-30-50** Sample ID: L12121401-04 Date Collected: 12/13/2012 0935

Date Received : 12/13/2012

Parameter		Result	Qual	RDL	Units	
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	Ū	10.0	ug/l	
VINYL CHLORIDE	<	10.0	Ū	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		105	용	(74-140)		
Surr: BROMOFLUOROBENZENE		105	용	(77-133)		
Surr: TOLUENE-D8		105	<b>ે</b>	(77-131)		
et Chemistry						
PA 353,2						
Date/Time: 12/19/2012 1704	Analyst: LVICKERY		Dilution:			
NITRATE + NITRITE NITROGEN	(AS N)	0.0802		0.0200	mg/l	
M 2320B						
Date/Time: 12/18/2012 1633	Analyst: CDC		Dilution:			
ALKALINITY, TOTAL		108		2,00	mg/l	
ENDPOINT PH		4.50			su	
M 4500-S2-D						
Date/Time: 12/17/2012 1154	Analyst: CDC	,	Dilution	: 1		
SULFIDE, TOTAL	<	0.0500	U	0.0500	mg/l	
W846 9056A						
Date/Time: 12/14/2012 1947	Analyst: CDC		Dilution	: 1		
SULFATE		1.45		1.00	mg/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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#### Certificate of Analysis

Client ID: **D12-30-20**Sample ID: L12121401-**0**5

Date Collected: 12/13/2012 1020

Date Received : 12/13/2012

Parameter . Result Qual RDL Units

Matrix : GW/ChemW

#### Volatile Organics

SW846 8260B

Time: 12/17/2012 1927 Analyst:	JVB	Dilu	tion: 1	
l,1,1-TRICHLOROETHANE	<	5.00 U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00 U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0 U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00 U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00 U	5,00	ug/l
1,1-DICHLOROETHENE	<	5.00 U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5,00 U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00 U	5.00	ug/l
1,2-DIBROMOETHANE	<	5,00 U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00 U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00 U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00 U	5.00	ug/l
2-BUTANONE	<	10.0 U	10.0	ug/l
2-HEXANONE	<	10.0 U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00 U	5.00	ug/l
ACETONE	<	10.0 U	10.0	ug/l
BENZENE	<	5.00 U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00 U	5.00	ug/l
BROMOFORM	<	5.00 U	5.00	ug/l
BROMOMETHANE	<	10.0 U	10.0	ug/l
CARBON DISULFIDE	<	5.00 U	5,00	ug/l
CARBON TETRACHLORIDE	<	5.00 U	5.00	ug/l
CHLOROBENZENE	<	5.00 U	5.00	ug/l
CHLOROETHANE	<	10.0 U	10.0	ug/l
CHLOROFORM		73.3	5.00	ug/l
CHLOROMETHANE	<	10.0 U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00 U	5,00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00 U	5.00	ug/l
CYCLOHEXANE	<	5.00 U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5,00 U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00 U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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#### Certificate of Analysis

Client ID: D12-30-20 Sample ID: L12121401-05

Date/Time: 12/14/2012 2017

SULFATE

Date Collected: 12/13/2012 1020

Date Received : 12/13/2012

Parameter		Result	Qual	RDL	Units	
			· · · · · · · · · · · · · · · · · · ·			
ETHYLBENZENE	<	5.00	U	5.00	ug/l	
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l	
METHYL ACETATE	<	10.0	U	10.0	ug/l	
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l	
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l	
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l	
STYRENE	<	5.00	U	5.00	ug/l	
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l	
TOLUENE	<	5.00	U	5.00	ug/l	
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
TRICHLOROETHENE	<	5.00	U	5.00	ug/l	
TRICHLOROFLUOROMETHANE	<	5,00	U	5.00	ug/l	
VINYL ACETATE	<	10.0	U	10.0	ug/l	
VINYL CHLORIDE	<	10.0	U	10.0	ug/l	
XYLENE (TOTAL)	<	5.00	U	5,00	ug/l	
Surr: 1,2-DICHLOROETHANE-D4		108	용	(74-140)		
Surr: BROMOFLUOROBENZENE		109	왕	(77-133)		
Surr: TOLUENE-D8		109	양	(77-131)		
Chemistry						
353.2						
	Analyst: LVICKERY		Dilution	: 1		
NITRATE + NITRITE NITROGEN (A		0.955		0,0200	mg/l	
2320B						
	Analyst: CDC		Dilution	: 1		
ALKALINITY, TOTAL		60.5	*****	2.00	mg/l	
ENDPOINT PH		4.50			su	
4500-S2-D						
	Analyst: CDC		Dilution	: 1		
,						
SULFIDE, TOTAL	<	0.0500	Ū	0.0500	mg/l	

Analyst: CDC

Dilution: 1

mg/l

1.00



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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# QC Summary Data



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : January 03, 2013

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## QC Batch Report - Batch Sample List

WorkGroup : WG63939
Description: VO/8260/TCL

Matrix : GW/ChemW

Prep Method :

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12121401-01	D12-29-41 MS/MSD	1		12/17/2012 1743	JVB	1
L12121401-02	D12-29-00	1		12/17/2012 1809	JVB	1
L12121401-03	MW~200	1		12/17/2012 1835	JVB	1
T-12121401-04	D12-30-50	1		12/17/2012 1901	JVB	1
T-12121401-05	D12-30-20	1		12/17/2012 1927	JVB	1
MB63939:1	Method Blank	1		12/17/2012 1717	JVB	1
MB63939:2	Method Blank	1		12/18/2012 0947	PAP	1
LCS63939:1	Laboratory Control Spike	1		12/17/2012 2322	JVB	1
LCS63939:2	Laboratory Control Spike	1		12/18/2012 1242	PAP	1
MS12121401-01:63939	Matrix Spike	1		12/17/2012 2230	JVB	1
MSD12121401-01:63939	Matrix Spike Duplicate	1		12/17/2012 2256	JVB	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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## QC Batch Report - Surrogates % Recovery

WorkGroup: WG63939

trix : GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DCA 74-140	BFB 77-133	TOL 77-131
		460000000000000000000000000000000000000		
1,12121401-01	12/17/2012 1743	105	107	105
L12121401-02	12/17/2012 1809	103	106	105
L12121401-03	12/17/2012 1835	107	108	108
L12121401-04	12/17/2012 1901	105	105	105
L12121401-05	12/17/2012 1927	108	109	109
MB63939:1	12/17/2012 1717	96	96	96
MB63939:2	12/18/2012 0947	102		
LCS63939:1	12/17/2012 2322	107	109	106
LCS63939:2	12/18/2012 1242	102		,
MS12121401-01:63939	12/17/2012 2230	103	104	103
MSD12121401-01:63939	12/17/2012 2256	106	106	106

DCA - 1,2-DICHLOROETHANE-D4

BFB - BROMOFLUOROBENZENE

TOL - TOLUENE-D8



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.08

1455 OLD ALABAMA RD.

SUITE 170 ROSWELL, GA 30076

Report Date : January 03, 2013

Contact : BRYON DAHLGREN

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## QC Batch Report - Method Blanks

WorkGroup: WG63939 Blank : MB63939:1

Units RDLResult Qual Parameter

Matrix : GW/ChemW

#### Volatile Organics

SW846 8260B

Date/Time: 12/17/2012 1717 Analyst: JV	'B	Di	ilutio	on: 1	
1,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	Ü	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	Ü	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5,00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	Ŭ	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/1
ACETONE	<	10.0	Ü	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	Ü	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	U	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	Ü	5.00	ug/l
CHLOROETHANE	<	10.0	U	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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## QC Batch Report - Method Blanks

WorkGroup: WG63939 Blank : MB63939:1

Parameter		Result	Qual	RDL	Units
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5,00	ug/l
TETRACHLOROETHENE	<	5.00	U	5,00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		96	용	(74-140)	
Surr: BROMOFLUOROBENZENE		96	용	(77-133)	
Surr: TOLUENE-D8		96	용	(77-131)	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

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Units

#### QC Batch Report - Method Blanks

WorkGroup: WG63939 Blank : MB63939:2

RDL Result Qual Parameter

Matrix : GW/ChemW

Volatile Organics

SW846 8260B

Dilution: 1 Date/Time: 12/18/2012 0947 Analyst: PAP ug/l 5.00 U 5.00 CHLOROFORM



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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## QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63939

MS/MSD : MS12121401-01:63939

MSD12121401-01:63939

Matrix

: GW/ChemW

Prep Method

	on the	Sample	MS		MS	Limits
Parameter	Spike Added	Conc	Conc	Units	%REC	%REC
farameter 1,1,1-TRICHLOROETHANE	50.00	< 5.00	51.25	ug/l	103	75-121
1,1,2,2-TETRACHLOROETHANE	50.00	< 5.00	52,16	ug/l	104	78-114
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	< 10.00	56.19	ug/l	112	64-130
1,1,2-TRICHLOROETHANE	50.00	< 5.00	51.00	ug/l	102	78-113
1,1-DICHLOROETHANE	50.00	< 5.00	50.99	ug/l	102	76-116
1,1-DICHLOROETHENE	50.00	< 5.00	50.68	ug/l	101	71-127
1,2,3-TRICHLOROBENZENE	50.00	< 5.00	52.64	ug/l	105	75-112
1,2,4-TRICHLOROBENZENE	50.00	< 5.00	51.36	ug/l	103	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	< 5.00	52.52	ug/l	105	73-124
1,2-DIBROMOETHANE	50.00	< 5.00	51.44	ug/l	103	79-114
1,2-DICHLOROBENZENE	50.00	< 5.00	57.82	ug/l	116	76~109
1,2-DICHLOROETHANE	50.00	< 5.00	51.27	ug/l	103	74-122
·	50.00	< 5.00	52.07	ug/l	104	79-113
1,2-DICHLOROPROPANE	50.00	< 5.00	57.43	ug/l	115	69-118
1,3-DICHLOROBENZENE 1,4-DICHLOROBENZENE	50.00	< 5.00	51.56	ug/l	103	74-108
,	50.00	< 10.00	57.67	ug/l	115	68-134
2-BUTANONE 2-HEXANONE	50.00	< 10.00	56.11	ug/l	112	70-133
4-METHYL-2-PENTANONE	50.00	< 5.00	56.06	ug/l	112	69-135
ACETONE	50.00	< 10.00	63.00	ug/l	126	64-149
BENZENE	50.00	< 5.00	51,67	ug/l	103	77-114
BROMODICHLOROMETHANE	50.00	< 5.00	51.64	ug/l	103	76-123
BROMOFORM	50.00	< 5.00	52.06	ug/l	104	74-124
BROMOMETHANE	50.00	< 10.00	43.81	ug/l	88	64-121
CARBON DISULFIDE	50.00	< 5.00	51.60	uq/l	103	59-124
CARBON TETRACHLORIDE	50.00	< 5.00	53,31	ug/l	107	72-126
CHLOROBENZENE	50.00	< 5.00	57.96	ug/l	116	74-113
CHLOROETHANE	50.00	< 10.00	46.80	ug/l	94	71-121
CHLOROFORM	50.00	5.83	57.64	ug/l	104	76-119
CHLOROMETHANE	50.00	< 10.00	53.14	ug/l	106	59-123
CIS-1,2-DICHLOROETHENE	50.00	< 5.00	51.22	ug/l	102	74-118
CIS-1, 3-DICHLOROPROPENE	50.00	< 5.00	55.60	ug/l	111	83-125
CYCLOHEXANE	50.00	< 5.00	55,13	ug/1	110	59-126
DIBROMOCHLOROMETHANE	50.00	< 5.00	51.86	ug/l	104	77-121
DICHLORODIFLUOROMETHANE	50.00	< 5.00	55.84	ug/l	112	53-141
ETHYLBENZENE	50.00	< 5.00	51.42	ug/l	103	70-130
ISOPROPYL BENZENE	50.00	< 5.00	58.11	ug/l	116	74-114
METHYL ACETATE	50.00	< 10.00	54.71	ug/l	109	68-122
METHYL-TERT-BUTYL ETHER	50.00	< 5,00	53,16	ug/l	106	74-119



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

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## QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63939

MS/MSD : MS12121401-01:63939

MSD12121401-01:63939

Matrix

: GW/ChemW

Prep Method

	Spike	Sample	MS		MS	Limits
Parameter	Added	Conc	Conc	Units	%REC	%REC
METHYLCYCLOHEXANE	50.00	< 5.00	57.57	ug/l	115	61-126
METHYLENE CHLORIDE	50.00	< 5.00	49.21	ug/l	98	71-115
STYRENE	50.00	< 5.00	52.19	ug/l	104	75-116
TETRACHLOROETHENE	50.00	< 5.00	51.01	ug/l	102	69-121
TOLUENE	50.00	< 5.00	51.27	ug/l	103	74-115
TRANS-1,2-DICHLOROETHENE	50.00	< 5.00	50.40	ug/l	101	74-119
TRANS-1,3-DICHLOROPROPENE	50.00	< 5.00	50.53	ug/l	101	73-112
TRICHLOROETHENE	50.00	< 5.00	51.73	ug/l	103	74-120
TRICHLOROFLUOROMETHANE	50.00	< 5.00	56,45	ug/l	113	70-134
VINYL ACETATE	50.00	< 10.00	61.93	ug/l	124	59-146
VINYL CHLORIDE	50.00	< 10.00	48.43	ug/l	97	63-124
XYLENE (TOTAL)	150.0	< 5.00	167.5	ug/l	112	73-116

	an uu naanna maanna naanna harabab	a anno 466666666666666666666666666666666666			194000000000000000000000000000000000000		
	Spike	MSD		MSD		Limit	
Parameter	Added	Cond	Units	%REC	%RPD	%RPD	%REC
1,1,1-TRICHLOROETHANE	50.00	52.49	ug/l	105	2	16	75-121
1,1,2,2-TETRACHLOROETHANE	50.00	54.01	ug/l	108	3	18	78-114
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	56.55	ug/l	113	1	18	64-130
1,1,2-TRICHLOROETHANE	50.00	53.14	ug/l	106	4	14	78-113
1,1-DICHLOROETHANE	50.00	52.35	ug/l	105	3	15	76-116
1,1~DICHLOROETHENE	50.00	51.67	ug/l	103	2	16	71-127
1,2,3-TRICHLOROBENZENE	50.00	55.46	ug/l	111	5	20	75-112
1,2,4-TRICHLOROBENZENE	50.00	54.68	ug/l	109	6	18	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	56.05	ug/l	112	7	20	73-124
1,2-DIBROMOETHANE	50.00	54.31	ug/l	109	5	16	79-114
1,2-DICHLOROBENZENE	50.00	60.88	ug/l	122	5	15	76-109
1,2-DICHLOROETHANE	50.00	52.98	ug/l	106	3	16	74-122
1,2-DICHLOROPROPANE	50.00	54.10	ug/l	108	4	15	79-113
1,3-DICHLOROBENZENE	50.00	59,87	ug/l	120	4	17	69-118
1,4-DICHLOROBENZENE	50.00	53.14	ug/l	106	3	16	74-108
2-BUTANONE	50.00	57.21	ug/l	114	1	20	68-134
2-HEXANONE	50.00	57.20	ug/l	114	2	20	70-133
4-METHYL-2-PENTANONE	50.00	57.75	ug/l	116	3	19	69-135
ACETONE	50.00	60.08	ug/l	120	5	23	64-149
BENZENE	50,00	53.85	ug/l	108	4	15	77-114
BROMODICHLOROMETHANE	50.00	54.86	ug/l	110	6	16	76-123
BROMOFORM	50.00	55.47	ug/l	111	6	17	74-124
BROMOMETHANE	50.00	46.38	ug/l	93	6	22	64-121



SC Certification Number: 24110001

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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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## QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63939

MS/MSD : MS12121401-01:63939

MSD12121401-01:63939

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

					000000000000000000000000000000000000000	Limi	
	Spike	MSD		MSD		Limi %RPD	
Parameter	Added	Conc	Units	%REC	%RPD	000000000000000000000000000000000000000	000000000000000000000000000000000000000
CARBON DISULFIDE	50.00	54.02	ug/l	108	5	21	59-124
CARBON TETRACHLORIDE	50.00	53.70	ug/l	107	1	18	72-126
CHLOROBENZENE	50.00	59.55	ug/l	119	3	15	74-113
CHLOROETHANE	50.00	47.99	ug/l	96	3	17	71-121
CHLOROFORM	50.00	59.33	ug/l	107	3	14	76-119
CHLOROMETHANE	50.00	53.50	ug/l	107	1	18	59-123
CIS-1,2-DICHLOROETHENE	50.00	52.48	ug/l	105	2	15	74-118
CIS-1,3-DICHLOROPROPENE	50.00	59.43	ug/l	119	7	16	83-125
CYCLOHEXANE	50.00	55.02	ug/l	110	0	17	59-126
DIBROMOCHLOROMETHANE	50.00	55.31	ug/l	111	6	16	77-121
DICHLORODIFLUOROMETHANE	50.00	53.84	ug/l	108	4	20	53-141
ETHYLBENZENE	50.00	52.63	ug/l	105	2	20	70-130
ISOPROPYL BENZENE	50.00	59.62	ug/l	119	3	17	74-114
METHYL ACETATE	50.00	55.66	ug/l	111	2	19	68-122
METHYL-TERT-BUTYL ETHER	50,00	54.21	ug/l	108	2	16	74-119
METHYLCYCLOHEXANE	50.00	58.97	ug/l	118	2	16	61-126
METHYLENE CHLORIDE	50.00	50,58	ug/l	101	3	17	71-115
STYRENE	50.00	53.87	ug/l	108	3	17	75-116
TETRACHLOROETHENE	50.00	52,99	ug/l	106	4	16	69-121
TOLUENE	50.00	52.84	ug/l	106	3	15	74-115
TRANS-1,2-DICHLOROETHENE	50.00	53.02	ug/l	106	5	16	74-119
TRANS-1,3-DICHLOROPROPENE	50.00	52.96	ug/l	106	5	16	73-112
TRICHLOROETHENE	50.00	54.23	ug/l	108	5	15	74-120
TRICHLOROFLUOROMETHANE	50.00	57.26	ug/l	115	1	18	70-134
VINYL ACETATE	50,00	63.49	uq/1	127	2	19	59-146
VINYL CHLORIDE	50.00	49.68	ug/l	99	3	16	63-124
XYLENE (TOTAL)	150.0	172.1	ug/l	115	3	17	73-116
VITENE (IOINT)	150.0	_,	- 37 -				

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

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## QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63939 LCS

: LCS63939:1

Matrix

: GW/ChemW

Prep Method

	1100000	reaccasassum crescorterio	500000000000000000000000000000000000000	000000000000000000000000000000000000000	
	Spike	LCS		rcs	Limits
Parameter	Added	Conc	Units	%REC	%REC
1,1,1-TRICHLOROETHANE	50.00	52.68	ug/l	105	76-120
1,1,2,2-TETRACHLOROETHANE	50.00	54.72	ug/l	109	78-116
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	55.13	ug/l	110	65-125
1,1,2-TRICHLOROETHANE	50.00	53.29	ug/l	107	78-117
1,1-DICHLOROETHANE	50.00	52.99	ug/l	106	75-117
1,1-DICHLOROETHENE	50.00	52.03	ug/l	104	72-125
1,2,3-TRICHLOROBENZENE	50.00	57.15	ug/l	114	75-113
1,2,4-TRICHLOROBENZENE	50.00	55,30	ug/l	111	76-114
1,2-DIBROMO-3-CHLOROPROPANE	50.00	56.61	ug/l	113	77-122
1,2-DIBROMOETHANE	50.00	54.58	ug/l	109	80-116
1,2-DICHLOROBENZENE	50.00	61.11	ug/l	122	76-110
1,2-DICHLOROETHANE	50.00	52.86	ug/l	106	75-121
1,2-DICHLOROPROPANE	50.00	53.95	ug/l	108	79-115
1,3-DICHLOROBENZENE	50.00	60.35	ug/l	121	74-113
1,4-DICHLOROBENZENE	50.00	52.92	ug/l	106	74-109
2-BUTANONE	50.00	59.67	ug/l	119	72-129
2-HEXANONE	50.00	59.15	ug/l	118	73-132
4-METHYL-2-PENTANONE	50.00	58.40	ug/l	117	75-131
ACETONE	50.00	57.80	ug/l	116	70-138
BENZENE	50.00	52.86	ug/l	106	77-116
BROMODICHLOROMETHANE	50.00	53.89	ug/l	108	79-120
BROMOFORM	50.00	55.96	ug/l	112	79-121
BROMOMETHANE	50.00	49.51	ug/l	99	67~122
CARBON DISULFIDE	50.00	54.88	ug/l	110	59- <b>1</b> 25
CARBON TETRACHLORIDE	50.00	54.09	ug/l	108	74-124
CHLOROBENZENE	50.00	60.23	ug/l	120	75-113
CHLOROETHANE	50.00	47.72	ug/l	95	73-120
CHLOROFORM	50.00	53.25	ug/l	107	75-121
CHLOROMETHANE	50.00	54.23	ug/l	108	60-122
CIS-1,2-DICHLOROETHENE	50.00	53.05	ug/l	106	74-119
CIS-1,3-DICHLOROPROPENE	50.00	58.90	ug/l	118	83-126
CYCLOHEXANE	50.00	53.79	ug/l	108	60-123
DIBROMOCHLOROMETHANE	50.00	54.70	ug/l	109	779-121
DICHLORODIFLUOROMETHANE	50.00	51.86	ug/l	104	55-139
ETHYLBENZENE	50,00	53.41	ug/l	107	70-130
ISOPROPYL BENZENE	50.00	60.09	ug/l	120	74~113
METHYL ACETATE	50.00	56.80	ug/l	114	67-123
METHYL-TERT-BUTYL ETHER	50.00	54.53	ug/l	109	75-120



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.08

Report Date : January 03, 2013

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## QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63939 LCS

: LCS63939:1

Matrix

: GW/ChemW

Prep Method

	Spike	LCS		rcs	Limits
Parameter	Added	Conc	Units	%REC	%REC
METHYLCYCLOHEXANE	50.00	56.03	ug/l	112	62-123
METHYLENE CHLORIDE	50.00	50,68	ug/l	101	70-120
STYRENE	50.00	54.15	ug/l	108	78-113
TETRACHLOROETHENE	50.00	52.87	ug/l	106	70-120
TOLUENE	50.00	53.05	ug/l	106	75-116
TRANS-1,2-DICHLOROETHENE	50.00	53.33	ug/l	107	73-121
TRANS-1,3-DICHLOROPROPENE	50.00	53.08	ug/l	106	73-114
TRICHLOROETHENE	50.00	53.75	ug/l	108	75-119
TRICHLOROFLUOROMETHANE	50.00	55.97	ug/l	112	71-128
VINYL ACETATE	50.00	61.30	ug/l	123	65-142
VINYL CHLORIDE	50.00	49.13	ug/l	98	64-122
XYLENE (TOTAL)	150.0	174.5	ug/l	116	73-116



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

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Contact : BRYON DAHLGREN

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## QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63939

: LCS63939:2 LCS

Matrix

: GW/ChemW

Prep Method

Parameter	Spike Added	LCS Conc	Units	LCS %REC	Limits %REC
CHLOROFORM	50.00	49.90	ug/l	100	75-121



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Client : AECOM

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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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#### QC Batch Report - Batch Sample List

WorkGroup : WG63970

Description: WC/NO3NO2(5)

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

:

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
710101401 01	D12-29-41 MS/MSD	1		12/19/2012 1654	LVICKERY	1.
L12121401-01 L12121401-02	D12-29-41 M5/M5D	1		12/19/2012 1701	LVICKERY	1
L12121401-04	D12-30-50	1		12/19/2012 1704	LVICKERY	1
L12121401-05	D12-30-20	1		12/19/2012 1706	LVICKERY	1
MB63970:1	Method Blank	1		12/19/2012 1639	LVICKERY	1
LCS63970:1	Laboratory Control Spike	1		12/19/2012 163 <b>7</b>	LVICKERY	1
MS12121401-01:63970	Matrix Spike	1		12/19/2012 1656	LVICKERY	1
MS12121904-01:63970	Matrix Spike	1		12/19/2012 1 <b>7</b> 26	LVICKERY	2
MSD12121401-01:63970	Matrix Spike Duplicate	1		12/19/2012 1659	LVICKERY	1
MSD12121904-01:63970	Matrix Spike Duplicate	1		12/19/2012 1728	LVICKERY	2



SC Certification Number: 24110001

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SUITE 170

ROSWELL, GA 30076

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#### QC Batch Report - Method Blanks

WorkGroup: WG63970 Blank : MB63970:1

Parameter

Result

Qual

RDL

Units

Matrix : GW/ChemW

Wet Chemistry

Date/Time: 12/19/2012 1639 Analyst: LVICKERY Dilution: 1

mg/l

EPA 353.2

NITRATE + NITRITE NITROGEN (AS N)



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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Report Date : January 03, 2013

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## QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63970

MS/MSD : MS12121401-01:63970

MSD12121401-01:63970

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC	
NITRATE + NITRITE NITROGEN (AS N)	0.500	0.942	1.43	mg/l	97	90-110	
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC	
NITRATE + NITRITE NITROGEN (AS N)	0.500	1.42	mg/l	96	0	10 90-110	

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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## QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63970

MS/MSD : MS12121904-01:63970

MSD12121904-01:63970

Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	1.73	2.66	mg/l	93	90-110
Parameter	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
NITRATE + NITRITE NITROGEN (AS N)	1.00	2.66	mg/l	93	0	10 90-110

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

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Contact : BRYON DAHLGREN

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# QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63970

LCS : LCS63970:1 Matrix

: GW/ChemW

Prep Method

Analtyical Method: EPA 353.2

Parameter	Spike Added	LCS Conc	Units	LCS %REC	Limits %REC
NITRATE + NITRITE NITROGEN (AS N)	0.500	0.498	mg/l	100	90-110



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

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ROSWELL, GA 30076

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## QC Batch Report - Batch Sample List

WorkGroup : WG64021

Description: Total Alkalinity

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

:

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12121401-01	D12-29-41 MS/MSD	1		12/18/2012 1615	CDC	1
L12121401-02	D12-29-00	1		12/18/2012 1627	CDC	1
T.12121401-04	D12-30-50	1		12/18/2012 1633	CDC	1
L12121401-05	D12-30-20	1		12/18/2012 1639	CDC	1
D12121302-04:64021	Duplicate	1		12/18/2012 0553	CDC	1
D12121302 01:01011 D12121401-01:64021	Duplicate	1		12/18/2012 1623	CDC	1
MB64021:1	Method Blank	1		12/18/2012 1457	CDC	1
LCS64021:1	Laboratory Control Spike	1		12/18/2012 1541	CDC	1



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Contact : BRYON DAHLGREN

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QC Batch Report - Method Blanks

WorkGroup: WG64021 Blank : MB64021:1

Parameter Result Qual RDL Units

Matrix : GW/ChemW

Wet Chemistry

SM 2320B

 Date/Time:
 12/18/2012
 1457
 Analyst:
 CDC
 Dilution:
 1

 ALKALINITY, TOTAL

 1.00
 U
 1.00
 mg/l

 ENDPOINT PH
 4.20
 su



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

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## QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG64021

LCS

: LCS64021:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

Parameter	Spike Added	LCS Conc	Units		Limits %REC	
ALKALINITY, TOTAL	1000	1005	mg/l	100	90-110	



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Contact : BRYON DAHLGREN

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#### QC Batch Report - Sample Duplicates

WorkGroup: WG64021

Duplicate: D12121302-04:64021

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

;

	Sample Conc		RDL		%RPD	
ALKALINITY, TOTAL	56.38	55.35	2,00	mg/l	2	10

NOTE: Calculation of %RPD is not required for concentrations less than 10% the RDL.



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Client : AECOM

1455 OLD ALABAMA RD.

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Contact : BRYON DAHLGREN

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## QC Batch Report - Sample Duplicates

WorkGroup: WG64021

Duplicate: D12121401-01:64021

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 2320B

:

Parameter	Sample Conc		RDL	Units			
ALKALINITY, TOTAL	27.16	27,16	1.00	mg/l	0,	10	

NOTE: Calculation of %RPD is not required for concentrations less than 10X the RDL.



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## QC Batch Report - Batch Sample List

WorkGroup : WG64022 Description: Sulfide Matrix

: GW/ChemW

Prep Method

: Analtyical Method: SM 4500-S2-D

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
		4		12/17/2012 1151	CDC	1
L12121401-01	D12-29-41 MS/MSD	1		12/17/2012 1151	CDC	1
L12121401-02	D12-29-00 D12-30-50	1		12/17/2012 1154	CDC	1
L12121401-04 L12121401-05	D12-30-30	1		12/17/2012 1155	CDC	1
MB64022:1	Method Blank	1		12/17/2012 1158	CDC	1
LCS64022:1	Laboratory Control Spike	1		12/17/2012 1145	CDC	1
MS12121401-01:64022	Matrix Spike	1		12/17/2012 1152	CDC	1
MS12121701-05:64022	Matrix Spike	1		12/17/2012 1202	CDC	1
MSD12121401-01:64022	Matrix Spike Duplicate	1		12/17/2012 1152	CDC	1
MSD12121701-05:64022	Matrix Spike Duplicate	1		12/17/2012 1203	CDC	1



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Client : AECOM

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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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## QC Batch Report - Method Blanks

WorkGroup: WG64022

Blank : MB64022:1

Parameter

Result

0.0500 U

Qua1

Matrix : GW/ChemW

Wet Chemistry

Date/Time: 12/17/2012 1158

Analyst: CDC

Dilution: 1

SM 4500-S2-D

SULFIDE, TOTAL



SC Certification Number: 24110001

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Contact : BRYON DAHLGREN

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## QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG64022

MS/MSD : MS12121401-01:64022

MSD12121401-01:64022

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %REC
SULFIDE, TOTAL	0.500	< 0.0500	0.471	mg/l	94	81-121
	Spike	MOD				Limits
Parameter SULFIDE, TOTAL	Added 0.500	Conc 0.468	Units mg/l	%REC 94	<b>%RPD</b> 1	%RPD %REC 10 81-121

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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Contact : BRYON DAHLGREN

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## QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG64022

MS/MSD : MS12121701-05:64022

MSD12121701-05:64022

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	Sample Conc	MS Conc	Units	MS %REC	Limits %RBC
SULFIDE, TOTAL	0.500	< 0.0500	0.468	mg/l	94	81-121
	Spike Added	MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
Parameter SULFIDE, TOTAL	0.500	0.452	mg/l	90	4	10 81-121

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

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SUITE 170

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Contact : BRYON DAHLGREN

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# QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG64022 LCS

: LCS64022:1

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SM 4500-S2-D

Parameter	Spike Added	LCS Conc	Units	lcs %rec	Limits %REC	
SULFIDE, TOTAL	0.500	0.458	mg/l	92	90-110	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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## QC Batch Report - Batch Sample List

WorkGroup : WG63930 Description: IC-GW

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

			PREP	ANALYTICAL		
Sample ID	Client ID	Run#	Date Time	Date Time	Analyst	Dilution
L12121401-01	D12-29-41 MS/MSD	1		12/14/2012 1644	CDC	1
1.12121401-02	D12-29-00	1		12/14/2012 1815	CDC	1
	D12-30-50	1		12/14/2012 1947	CDC	1
L12121401-04		1		12/14/2012 2017	CDC	1
L12121401-05	D12-30-20	1		12/14/2012 1037	CDC	1
MB63930:1	Method Blank	1		, .		-
LCS63930:1	Laboratory Control Spike	1		12/14/2012 1108	CDC	1
MS12121401-01:63930	Matrix Spike	1		12/14/2012 1714	CDC	1
MSD12121401-01:63930	Matrix Spike Duplicate	1		12/14/2012 1745	CDC	1



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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## QC Batch Report - Method Blanks

WorkGroup: WG63930 Blank : MB63930:1

Parameter

Qua1 Result

Matrix : GW/ChemW

Wet Chemistry

SW846 9056A

Date/Time: 12/14/2012 1037

Analyst: CDC

Dilution: 1

SULFATE

1.00 U



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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## QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63930

MS/MSD : MS12121401-01:63930

MSD12121401-01:63930

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

.Parameter	Spike Added		Sample Conc	MS Conc	Units	MS %REC	Limits %REC
SULFATE	10.00	<	1.00	9.84	mg/1	98	80-120
	Spike		MSD Conc	Units	MSD %REC	%RPD	Limits %RPD %REC
Parameter SULFATE	Added 10.00		9.90	mg/l	99	1	15 80-120

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



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ROSWELL, GA 30076

Contact : BRYON DAHLGREN

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## QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63930

: LCS63930:1 LCS

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 9056A

Parameter	Spike Added			LCS %rec	
SULFATE	10.00	10.05	mg/l	101	80-120



#### **Explanation of Symbols and Abbreviations**

The following defines common symbols and abbreviations used in reporting technical data:

RDL PQL LOQ SQL C umhos/cm	Report Detection Limit Practical Quantitation Limit Limit of Quantitation Sample Quantitation Limit Degrees Centigrade micromhodom	MDL DL LOD TIC F meq	Method Detection Limit Detection Limit Limit of Detection Tentatively Identified Compound Degrees Fahrenheit milliequivalents
su	Standard Units		

mg/l, mg/kg Units of concentration in milligrams per liter for liquids and milligrams per kilogram for solids. Also

referred to as Parts Per Million or "ppm".

ug/l, ug/kg Units of concentration in micrograms per liter for liquids and micrograms per kilograms for solids.

Also referred to as Parts Per Billion or "ppb".

Less ThanGreater Than

Solid samples (i.e. soil, sludge, and solid waste) are reported on an as received basis unless otherwise noted.

#### Data Qualifiers:

**B** Analyte also detected in the method blank.

**C** Amendable Cyanide is a negative value due to an unknown interference.

F Surrogate Standard Recovery exceeds the laboratory established acceptance limits.

J The reported result is an estimated value (eg matrix interference observed or concentration outside the quantitation range.

N Non-target analyte. The analyte is TIC (using mass spectrometry).

P Concentration difference between primary and confirmation columns >40%.

Q One or more quality control criteria failed (e.g., LCS recovery, surrogate spike recovery or CCV

U Final concentration is below the detection limit.

* Defined in report comments.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or biological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of the material involved, the test results will be meaningless. If you have any questions regarding the proper techniques of collecting samples, please contact us. However, we cannot be held responsible for sample integrity unless sampling has been performed by a member of our staff.

REPRESENTATION AND LIMITATION OF LIABILITY – The accuracy of all analytical results for samples begins as it is received by the laboratory. Integrity of the sample begins at the time it is placed in the possession of authorized Davis & Floyd, Inc. Laboratories personnel. All other warranties, expressed or implied, are disclaimed. Liability is limited to the cost of the analysis.



# Chain of Custody Record

, 	Page /	
+	of /	

		i	Comments	STO LEGISTE	Received By	I have liberty /	Relinquished By	)	The state of the s	THE STATE OF THE S	The state of the s	- Vertical III	- 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	The state of the s		The state of the s	THE COLUMN TWO IS NOT	212-30-20	012-30-50	MW-200	012-29-00	012-29-41	Sample Description			NOTICE:	Mark Hartford	Collected By	Mark Hartford	Contact		AECOM
			TOTAL PROPERTY AND A STATE OF THE PROPERTY AND A STATE OF	12 13 14 13 W	Date Time Received By	123-12 180 Paris				100								12-13-12 1020	12-13-12 935	12-12-12 1510	12-1242 1500	12-12-12 1440	Time Date Time	Date Initiated Sample Collection	Sampling	Composite			Bryon Dahlgren	Report To	Auriga Polymers - Sptbg, SC	Project / Site Location 061576.07- © Sn. **/
					Date	12-13-	Date	7.7.7.2		<b>4</b>				05	CAA	IDI E	600	X Vn o	× 50	X Vol	× ^ ^	20 X	Type Total	Composite Grab Matrix Type Number of	e Container	s	(Optional)	Atmospheric Conditions		Сору То		Laboratory ( 816 E.
genil like ni	2	Temp. at Harvest	Sample Chamber			12 1720	ite Time						VOIM		SAIV	IFLE:	CON				311	39X3 X3	AAAI	VOC's Meti SO4, Alkali Sulfide	hod 8260 J/U- inity, NO2	7	3x40 G TFE 500 P		Tuman	Report	Email: Laboratory@davisfloyd.com	Laboratory Certification Numbers: SC - 24110, NC - 25, 816 E. Durst Avenue, Greenwood, SC 29649 (86
Multiplier	Stat Data:	Beginning	Flow Measurement (Note 1)	1/50/5.	Received in Laboratory By		Relinquished By													***		13		N <del>O3</del>	e SIM		125 P 3x40 G IFE	Required Parameters, Containers and Preservatives (P*)	ound Requirements: [ ] St	nents:[		
-			e 1) Time	Mall 18.13.	By Date		Date																					iners and Preservatives (F	andard []Rush (Specify	ndard []Data Package (		25, NELAP - E87633, TN - 2923, V (864) 229-4413 Fax: (864) 229-7119
time to reach 4°C. Ct	in which the Ot temperature does	ants eny		7730	Time		Time																Ŧ	Indicate a	nv know	n oi			,	pecify Level: 1 2 3 4)	3	23, VA - 77 9-7119
Immediate Delivery: Custody Seal: Intact / Bro	On Ice: Yes / No Temp	D (if available):	Receipt Information		Tracking Number	UPS FEDEX CLIENT COURIER	Shipped Via							spire in a		T the state of the			· · · · · · · · · · · · · · · · · · ·		1	osm/sia	HOT Comments		eards with			Special Instructions		PO / Quote Number		Office Use Only Laboratory Work Request
Intact / Broken / None	Temp(C) #	1				-	(D&F)											05	40	03	60		Fraction	レ <u>/名1</u> 2	2140	0	90		0	70		nly est

Matrix Type Definitions 1-Drinking Water 2-Clean Water 5-Groundwater 7-Soll/Sediment 8-Liquid Sludge 9-Oil 12-Air (P) Preservative Definitions A-None B-H2SO4 C-HCI D-HNO3 E-NaOH F-Filtered G-Zn Acetate

(Note 1) For Discharge Measurements

Immediate Delivery: Yes Land time to reach 4°C. Custody Seal: Intact / Broken / New ements Davis & Floyd, Inc. FL02_03 (04/10)



January 17, 2013

BRYON DAHLGREN AECOM 1455 OLD ALABAMA RD. SUITE 170 ROSWELL, GA 30076

Report ID: AL164 Page 1 of 18

Login Number

:L12121002

Project Number

:61576.07

Description

:AURIGA POLYMERS - SPARTANBURG, SC

#### Dear Bryon Dahlgren:

We are pleased to provide the enclosed analytical results for the samples received by Davis & Floyd, Inc. on December 07, 2012.

A formal Quality Assurance/Quality Control program is maintained by Davis & Floyd, which is designed to meet or exceed the ISO/IEC 17025, EPA, NELAP or other appropriate regulatory requirements. All analytical analyses for this project met QA/QC criteria and the results are within the 99% confidence interval for each method unless otherwise stated in the footnotes. This report is to be reproduced only in full.

Feel free to contact our Client Services Representative at (864) 229-4413 if further explanation of the analysis is required. Unless other arrangements have been made, samples will be disposed of or returned 14 days from the date of the report. We appreciate the opportunity to provide services to your firm.

Sincerely.

DAVIS & FLOYD, INC.

John H. McCord, Jr. Laboratory Manager

This report conatins a TOTAL of _____ pages, including attachments.

Initials:



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.07

Report Date : January 17, 2013

Page 2 of 18

Report ID: AL164

# Certificate of Analysis Report

Sample ID	Client ID	Date Collected	Date Received	
L12121002-21	MW-200	12/05/2012 1400	12/07/2012	
L12121002-22	MW-52	12/05/2012 1520	12/07/2012	

This data report has been prepared and reviewed in accordance with standard operating procedures. Test results relate only to the sample tested.

Please direct any questions to your Project Manager

Reviewed by

John H McCord, Jr.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.07

Report Date : January 17, 2013

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### Certificate of Analysis

Client ID: MW-200

Sample ID: L12121002-21

Date Collected: 12/05/2012 1400

Date Received : 12/07/2012

Parameter

Result Qual RDL

Units

Matrix : GW/ChemW

#### Volatile Organics

SW846 8260B

Time: 12/13/2012 1156 Analyst:	JVB	D.	ilution	: 1	,
,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l
,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,2,4-TRICHLOROBENZENE	<	5.00	Ū	5.00	ug/l
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROBENZENE	<	5.00	Ŭ	5.00	ug/l
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l
2-BUTANONE	<	10.0	U	10.0	ug/l
2-HEXANONE	<	10.0	U	10.0	ug/l
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l
ACETONE	<	10.0	U	10.0	ug/l
BENZENE	<	5.00	U	5.00	ug/l
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l
BROMOFORM	<	5.00	U	5.00	ug/l
BROMOMETHANE	<	10.0	U	10.0	ug/l
CARBON DISULFIDE	<	5.00	Ū	5.00	ug/l
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l
CHLOROBENZENE	<	5.00	Ū	5.00	ug/l
CHLOROETHANE	<	10.0	Ū	10.0	ug/l
CHLOROFORM	<	5.00	U	5.00	ug/l
CHLOROMETHANE	<	10.0	U	10.0	ug/l
CIS-1,2-DICHLOROETHENE	<	5.00	Ū	5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
CYCLOHEXANE	<	5.00	U	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	Ū	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact ; BRYON DAHLGREN

Project Number: 61576.07

Report Date : January 17, 2013

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### Certificate of Analysis

Client ID: MW-200 Sample ID: L12121002-21 Date Collected: 12/05/2012 1400
Date Received : 12/07/2012

Parameter		Result	Qual	RDL	Units
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		95	%	(74-140)	
Surr: BROMOFLUOROBENZENE		93	ે	(77-133)	
Surr: TOLUENE-D8		95	용	(77-131)	

Sample Comments: L12121002-21

8260B VOCs

Analysis exceeded the 7 day holding time.



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.07

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Report Date : January 17, 2013 Page 5 of 18 Report ID: AL164

### Certificate of Analysis

Client ID: MW-52

Sample ID: L12121002-22

Date Collected: 12/05/2012 1520

Date Received : 12/07/2012

Parameter Result Qual RDL Units

Matrix : GW/ChemW

#### Volatile Organics

SW846 8260B

Date/Time: 12/13/2012 1223 Analyst:	JVB	Di	(lution	n: 1	************	
1,1,1-TRICHLOROETHANE	<	5.00	U	5,00	ug/l	
1,1,2,2-TETRACHLOROETHANE	<	5,00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5,00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5.00	U	5,00	ug/l	
BROMODICHLOROMETHANE	<	5,00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	U	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM	<	5.00	U	5.00	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
CIS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l	
CYCLOHEXANE	<	5.00	U	5.00	ug/l	
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l	
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.07

Report Date : January 17, 2013

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## Certificate of Analysis

Client ID: MW-52

Sample ID: L12121002-22

Date Collected: 12/05/2012 1520 Date Received : 12/07/2012

Parameter		Result	Qual	RDL	Units
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5,00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1, 2-DICHLOROETHENE	<	5.00	U	5.00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5,00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	σ	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		96	응	(74-140)	
Surr: BROMOFLUOROBENZENE		93	용	(77-133)	
Surr: TOLUENE-D8		96	용	(77-131)	

Sample Comments: L12121002-22

8260B VOCs

Analysis exceeded the 7 day holding time.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.07

Report Date : January 17, 2013

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QC Summary Data



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.07

Report Date

: January 17, 2013

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Report ID: AL164

#### QC Batch Report - Batch Sample List

WorkGroup : WG63907

Description: VO/8260/TCL

Matrix Prep Method : GW/ChemW

Analtyical Method: SW846 8260B

ANALYTICAL Run# Date Time Date Time Analyst Dilution Client ID Sample ID 1 12/13/2012 1156 MW-200 1 L12121002-21 1 12/13/2012 1223 JVB MW-52 1 L12121002-22 12/13/2012 1033 JVB 1 1 Method Blank MB63907:1 1 PAP 12/14/2012 0927 1 Method Blank MB63907:2 JVB 1 12/13/2012 1921 Laboratory Control Spike LCS63907:1 PAP 1 12/14/2012 1630 Laboratory Control Spike 1 LCS63907:2 12/13/2012 1737 JVB 1 1 MS12121002-19:63907 Matrix Spike 12/13/2012 1803 JVB 1 1 Matrix Spike Duplicate MSD12121002-19:63907



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.07

Report Date : January 17, 2013

Page 9 of 18 Report ID: AL164

# QC Batch Report - Surrogates % Recovery

WorkGroup: WG63907

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

SampleNumber	MeasureDate	DCA 74-140	BFB 77-133	TOL 77-131
			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
L12121002-21	12/13/2012 1156	95	93	95
L12121002-22	12/13/2012 1223	96	93	96
MB63907:1	12/13/2012 1033	99	98	100
MB63907:2	12/14/2012 0927	108		
LCS63907:1	12/13/2012 1921	95	92	95
LCS63907:2	12/14/2012 1630	116		
MS12121002-19:63907	12/13/2012 1737	95	91	92
MSD12121002-19:63907	12/13/2012 1803	96	93	95

DCA - 1,2-DICHLOROETHANE-D4

BFB - BROMOFLUOROBENZENE

TOL - TOLUENE-D8



SC Certification Number: 24110001

Client : AECOM

Project Number: 61576.07

1455 OLD ALABAMA RD. SUITE 170

ROSWELL, GA 30076

Report Date : January 17, 2013

Contact : BRYON DAHLGREN

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## QC Batch Report - Method Blanks

WorkGroup: WG63907 Blank : MB63907:1

Parameter

Result

Qual

Units

Matrix : GW/ChemW

#### Volatile Organics

SW846 8260B

Time: 12/13/2012 1033 Analyst: 3	TVB		ilution	: 1	******	
,1,1-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
,1,2,2-TETRACHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	<	10.0	U	10.0	ug/l	
1,1,2-TRICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,1-DICHLOROETHENE	<	5.00	U	5.00	ug/l	
1,2,3-TRICHLOROBENZENE	<	5.00	U	5,00	ug/l	
1,2,4-TRICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DIBROMO-3-CHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,2-DIBROMOETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROETHANE	<	5.00	U	5.00	ug/l	
1,2-DICHLOROPROPANE	<	5.00	U	5.00	ug/l	
1,3-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
1,4-DICHLOROBENZENE	<	5.00	U	5.00	ug/l	
2-BUTANONE	<	10.0	U	10.0	ug/l	
2-HEXANONE	<	10.0	U	10.0	ug/l	
4-METHYL-2-PENTANONE	<	5.00	U	5.00	ug/l	
ACETONE	<	10.0	U	10.0	ug/l	
BENZENE	<	5.00	U	5.00	ug/l	
BROMODICHLOROMETHANE	<	5.00	U	5.00	ug/l	
BROMOFORM	<	5.00	U	5.00	ug/l	
BROMOMETHANE	<	10.0	U	10.0	ug/l	
CARBON DISULFIDE	<	5.00	U	5.00	ug/l	
CARBON TETRACHLORIDE	<	5.00	U	5.00	ug/l	
CHLOROBENZENE	<	5.00	Ū	5.00	ug/l	
CHLOROETHANE	<	10.0	U	10.0	ug/l	
CHLOROFORM	<	5.00	U	5.00	ug/l	
CHLOROMETHANE	<	10.0	U	10.0	ug/l	
CIS-1,2-DICHLOROETHENE	<	5.00	U	5.00	ug/l	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.07

Report Date : January 17, 2013

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# QC Batch Report - Method Blanks

WorkGroup: WG63907 Blank : MB63907:1

Parameter		Result	Qua1	RDL	Units
		- 00		5.00	ug/l
CIS-1,3-DICHLOROPROPENE	<	5.00	Ü		<u>.</u>
CYCLOHEXANE	<	5.00	Ū	5.00	ug/l
DIBROMOCHLOROMETHANE	<	5.00	U	5.00	ug/l
DICHLORODIFLUOROMETHANE	<	5.00	U	5.00	ug/l
ETHYLBENZENE	<	5.00	U	5.00	ug/l
ISOPROPYL BENZENE	<	5.00	U	5.00	ug/l
METHYL ACETATE	<	10.0	U	10.0	ug/l
METHYL-TERT-BUTYL ETHER	<	5.00	U	5.00	ug/l
METHYLCYCLOHEXANE	<	5.00	U	5.00	ug/l
METHYLENE CHLORIDE	<	5.00	U	5.00	ug/l
STYRENE	<	5.00	U	5.00	ug/l
TETRACHLOROETHENE	<	5.00	U	5.00	ug/l
TOLUENE	<	5.00	U	5.00	ug/l
TRANS-1,2-DICHLOROETHENE	<	5.00	U	5,00	ug/l
TRANS-1,3-DICHLOROPROPENE	<	5.00	U	5.00	ug/l
TRICHLOROETHENE	<	5.00	U	5.00	ug/l
TRICHLOROFLUOROMETHANE	<	5.00	U	5.00	ug/l
VINYL ACETATE	<	10.0	U	10.0	ug/l
VINYL CHLORIDE	<	10.0	U	10.0	ug/l
XYLENE (TOTAL)	<	5.00	U	5.00	ug/l
Surr: 1,2-DICHLOROETHANE-D4		99	상	(74-140)	
Surr: BROMOFLUOROBENZENE		98	양	(77-133)	
Surr: TOLUENE-D8		100	용	(77-131)	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.07

Report Date : January 17, 2013

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### QC Batch Report - Method Blanks

WorkGroup: WG63907 Blank : MB63907:2

Parameter

Result

Qual

Units

Matrix : GW/ChemW

Volatile Organics

CHLOROFORM

SW846 8260B

Date/Time: 12/14/2012 0927

Analyst: PAP

Dilution: 1

5.00 U

5.00 ug/l

Surr: 1,2-DICHLOROETHANE-D4

108 %

(74-140)



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.07

Report Date : January 17, 2013

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# QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63907

MS/MSD : MS12121002-19:63907

MSD12121002-19:63907

Matrix

: GW/ChemW

Prep Method

					MS	Limits
	Spike	Sample	MS	Units	M5 %REC	%REC
Parameter	Added	Conc	Conc 47.88	ug/l	96	75-1 <b>2</b> 1
1,1,1-TRICHLOROETHANE	50.00	< 5.00	47.88	ug/l	99	78-114
1,1,2,2-TETRACHLOROETHANE	50.00	< 5.00		<u> </u>	90	64-130
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	< 10.00	45.13	ug/1	98	78-113
1,1,2-TRICHLOROETHANE	50.00	< 5.00	48.92	ug/l		76-116
1,1-DICHLOROETHANE	50.00	< 5.00	47.77	ug/l	96	71-127
1,1-DICHLOROETHENE	50.00	< 5.00	46.53	ug/l	93	75-112
1,2,3-TRICHLOROBENZENE	50.00	< 5.00	44.82	ug/l	90	76-112
1,2,4-TRICHLOROBENZENE	50.00	< 5.00	44.71	ug/l	89	
1,2-DIBROMO-3-CHLOROPROPANE	50.00	< 5.00	46.99	ug/l	94	73-124
1,2-DIBROMOETHANE	50.00	< 5.00	48.97	ug/l	98	79-114
1,2-DICHLOROBENZENE	50.00	< 5.00	51.45	ug/l	103	76-109
1,2-DICHLOROETHANE	50.00	< 5.00	48.41	ug/l	97	74-122
1,2-DICHLOROPROPANE	50.00	< 5.00	48.31	ug/l	97	79-113
1,3-DICHLOROBENZENE	50.00	< 5.00	50.82	ug/l	102	69-118
1,4-DICHLOROBENZENE	50.00	< 5.00	43.74	ug/l	87	74-108
2-BUTANONE	50.00	< 10.00	48.89	ug/l	98	68-134
2-HEXANONE	50.00	< 10.00	49.76	ug/l	100	70-133
4-METHYL-2-PENTANONE	50.00	< 5.00	50.82	ug/l	102	69-135
ACETONE	50.00	< 10.00	55.59	ug/l	111	64-149
BENZENE	50.00	< 5.00	47.70	ug/l	95	77-114
BROMODICHLOROMETHANE	50.00	< 5.00	48.78	ug/l	98	76-123
BROMOFORM	50.00	< 5.00	48.77	ug/l	98	74-124
BROMOMETHANE	50.00	< 10.00	40.78	ug/l	82	64-121
CARBON DISULFIDE	50.00	< 5.00	37.03	ug/l	74	59-124
CARBON TETRACHLORIDE	50.00	< 5.00	46.84	ug/l	94	72-126
CHLOROBENZENE	50.00	< 5.00	52.83	ug/l	106	74-113
CHLOROETHANE	50.00	< 10.00	43.54	ug/l	87	71-121
CHLOROFORM	50.00	< 5.00	48.07	ug/l	96	76-119
CHLOROMETHANE	50.00	< 10.00	46.59	ug/l	93	59-123
CIS-1,2-DICHLOROETHENE	50.00	< 5.00	48.49	ug/l	97	74-118
CIS-1,3-DICHLOROPROPENE	50.00	< 5.00	51.06	ug/l	102	83-125
CYCLOHEXANE	50.00	< 5,00	44.46	ug/l	89	59-126
DIBROMOCHLOROMETHANE	50.00	< 5.00	49.70	ug/l	99	77-121
DICHLORODIFLUOROMETHANE	50.00	< 5.00	43.20	ug/l	86	53-141
ETHYLBENZENE	50.00	< 5.00	46.87	ug/l	94	70-130
ISOPROPYL BENZENE	50.00	< 5.00	52.09	ug/l	104	74-114
METHYL ACETATE	50.00	< 10.00	50.16	ug/l	100	68-122
METHYL-TERT-BUTYL ETHER	50.00	< 5.00	48.55	ug/l	97	74-119



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.07

Report Date : January 17, 2013

Page 14 of 18 Report ID: AL164

# QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63907

MS/MSD : MS12121002-19:63907

MSD12121002-19:63907

Matrix

: GW/ChemW

Prep Method

	Spike	Sample	MS		MS	Limits
Parameter	Added	Conc	Conc	Units	%REC	%REC
METHYLCYCLOHEXANE	50.00	< 5.00	45.08	ug/l	90	61-126
METHYLENE CHLORIDE	50.00	< 5.00	46.19	ug/l	92	71-115
STYRENE	50.00	< 5.00	47.52	ug/l	95	75-116
TETRACHLOROETHENE	50.00	6.64	52.44	ug/l	92	69-121
TOLUENE	50.00	< 5.00	47.19	ug/l	94	74-115
TRANS-1,2-DICHLOROETHENE	50.00	< 5.00	43.52	ug/l	87	74-119
TRANS-1,3-DICHLOROPROPENE	50.00	< 5.00	45.96	ug/l	92	73-112
TRICHLOROETHENE	50.00	< 5.00	47.11	ug/l	94	74-120
TRICHLOROFLUOROMETHANE	50.00	< 5.00	49.06	ug/l	98	70-134
VINYL ACETATE	50.00	< 10,00	50.29	ug/l	101	59-146
VINYL CHLORIDE	50.00	< 10.00	43.05	ug/l	86	63-124
XYLENE (TOTAL)	150.0	< 5.00	152.1	ug/l	101	73-116

				MSD		Limits		
	Spike	MSD	Units	MSD %REC	%RPD	%RPD	SREC	
Parameter	Added	Conc	kooo oo	56000004100001100001100011000	000420900000000000000000	4950500000000	75-121	
1,1,1-TRICHLOROETHANE	50.00	48.56	ug/l	97	1	16		
1,1,2,2-TETRACHLOROETHANE	50.00	49,86	ug/l	100	1	18	78-114	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	46.82	ug/l	94	4	18	64-130	
1,1,2-TRICHLOROETHANE	50.00	49.62	ug/l	99	1	14	78-113	
1,1-DICHLOROETHANE	50.00	48.47	ug/l	97	1	15	76-116	
1,1-DICHLOROETHENE	50.00	47,14	ug/l	94	1	16	71-127	
1,2,3-TRICHLOROBENZENE	50.00	47.55	ug/l	95	6	20	75-112	
1,2,4-TRICHLOROBENZENE	50.00	46.98	ug/l	94	5	18	76-114	
1.2-DIBROMO-3-CHLOROPROPANE	50.00	51.19	ug/l	102	9	20	73-124	
1.2-DIBROMOETHANE	50.00	49.84	ug/l	100	2	16	79-114	
1,2-DICHLOROBENZENE	50.00	52.50	ug/l	105	2	15	76-109	
1,2-DICHLOROETHANE	50.00	48.68	ug/l	97	1	16	74-122	
1,2-DICHLOROPROPANE	50.00	49,24	ug/l	98	2	15	79-113	
1,3-DICHLOROBENZENE	50.00	52.30	ug/l	105	3	17	69-118	
1,4-DICHLOROBENZENE	50.00	45.91	ug/l	92	5	16	74-108	
2-BUTANONE	50.00	51.12	ug/l	102	4	20	68-134	
	50.00	52.63	ug/l	105	6	20	70-133	
2-HEXANONE	50.00	52.04	ug/l	104	2	19	69-135	
4-METHYL-2-PENTANONE	50.00	58.85	ug/1	118	6	23	64-149	
ACETONE	50.00	48.45	ug/l	97	2	15	77-114	
BENZENE				99	2	16	76-123	
BROMODICHLOROMETHANE	50.00	49.54	ug/l			17	74-124	
BROMOFORM	50.00	49.52	ug/l	99	2			
BROMOMETHANE	50.00	44.66	ug/l	89	9	22	64-121	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.07

Report Date : January 17, 2013

Page 15 of 18 Report ID: AL164

# QC Batch Report - Matrix Spikes and Duplicates

WorkGroup: WG63907

MS/MSD : MS12121002-19:63907

MSD12121002-19:63907

Matrix

: GW/ChemW

Prep Method

Analtyical Method: SW846 8260B

	Spike MSD			MSD Limits			ts
Parameter	- Added	Conc	Units	%REC	%RPD	%RPD	%REC
CARBON DISULFIDE	50.00	39.93	ug/l	80	8	21	59-124
CARBON TETRACHLORIDE	50.00	48.37	ug/l	97	3	18	72-126
CHLOROBENZENE	50.00	53.82	ug/l	108	2	15	74-113
CHLOROETHANE	50.00	45.10	ug/l	90	4	17	71-121
CHLOROFORM	50.00	48.32	ug/l	97	1	14	76-119
CHLOROMETHANE	50.00	46.74	ug/l	93	0	18	59-123
CIS-1,2-DICHLOROETHENE	50.00	49.27	ug/l	99	2	15	74-118
CIS-1,3-DICHLOROPROPENE	50.00	52.78	ug/l	106	3	16	83-125
CYCLOHEXANE	50.00	45.44	ug/l	91	2	17	59-126
DIBROMOCHLOROMETHANE	50.00	50.99	ug/l	102	3	16	77-121
DICHLORODIFLUOROMETHANE	50.00	43.56	ug/l	87	1	20	53-141
ETHYLBENZENE	50.00	47.78	ug/l	96	2	20	70-130
ISOPROPYL BENZENE	50.00	53.67	ug/l	107	3	17	74-114
METHYL ACETATE	50.00	51.29	ug/l	103	2	19	68-122
METHYL-TERT-BUTYL ETHER	50.00	49.25	ug/l	99	1	16	74-119
METHYLCYCLOHEXANE	50.00	46.80	ug/l	94	4	16	61-126
METHYLENE CHLORIDE	50.00	46,56	ug/l	93	1	17	71-115
STYRENE	50.00	48.25	ug/l	97	2	17	75-116
TETRACHLOROETHENE	50.00	54.48	ug/l	96	4	16	69-121
TOLUENE	50.00	48.42	ug/l	97	3	15	74-115
TRANS-1,2-DICHLOROETHENE	50.00	44.90	ug/l	90	3	16	74-119
TRANS-1,3-DICHLOROPROPENE	50.00	46.98	ug/l	94	2	16	73-112
TRICHLOROETHENE	50.00	49.26	ug/l	99	4	15	74-120
TRICHLOROFLUOROMETHANE	50,00	50.02	ug/l	100	2	18	70-134
VINYL ACETATE	50.00	51.58	ug/l	103	3	19	59-146
VINYL CHLORIDE	50.00	43.54	ug/l	87	1	16	63-124
XYLENE (TOTAL)	150.0	154.6	ug/l	103	2	17	73-116

NOTE: MS/MSD % recoveries are not evaluated if the sample concentration is greater than four times the spike added.



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.07

Report Date : January 17, 2013

Page 16 of 18 Report ID: AL164

# QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63907 : LCS63907:1 LCS

Matrix

: GW/ChemW

Prep Method

				LCS	Limits	
	Spike	LCS	Units	acs %rec	%REC	
Parameter	Added	Conc 48.61	ug/l	97	76-120	511010100100100000000000000000000000000
1,1,1-TRICHLOROETHANE	50.00		ug/l	99	78-116	
1,1,2,2-TETRACHLOROETHANE	50.00	49.71	= '	90	65-125	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	50.00	45.04	ug/l		78-117	
1,1,2-TRICHLOROETHANE	50.00	48.95	ug/l	98	75-117	
1,1-DICHLOROETHANE	50.00	48.18	ug/l	96	72-125	
1,1-DICHLOROETHENE	50.00	46.90	ug/l	94	72-125	
1,2,3-TRICHLOROBENZENE	50.00	46.88	ug/l	94		
1,2,4-TRICHLOROBENZENE	50.00	46.83	ug/l	94	76-114	
1,2-DIBROMO-3-CHLOROPROPANE	50.00	49.83	ug/l	100	77-122	
1,2-DIBROMOETHANE	50.00	49.30	ug/l	99	80-116	
1,2-DICHLOROBENZENE	50.00	53.43	ug/l	107	76-110	
1,2-DICHLOROETHANE	50.00	48,80	ug/l	98	75-121	
1,2-DICHLOROPROPANE	50.00	48,53	ug/l	97	79-115	
1,3-DICHLOROBENZENE	50.00	53.18	ug/l	106	74-113	
1,4-DICHLOROBENZENE	50.00	46.20	ug/l	92	74-109	
2-BUTANONE	50.00	52.16	ug/l	104	72-129	
2-HEXANONE	50.00	52.65	ug/l	105	73-132	
4-METHYL-2-PENTANONE	50.00	53.52	ug/l	107	75-131	
ACETONE	50.00	59.68	ug/l	119	70-138	
BENZENE	50.00	47.97	ug/l	96	77-116	
BROMODICHLOROMETHANE	50.00	49.06	ug/l	98	79-120	
BROMOFORM	50.00	50.34	ug/l	101	79-121	
BROMOMETHANE	50.00	43.89	ug/l	88	67-122	
CARBON DISULFIDE	50.00	39.93	ug/l	80	59-125	
CARBON TETRACHLORIDE	50.00	47.73	ug/l	95	74-124	
CHLOROBENZENE	50.00	53.67	ug/l	107	75-113	
CHLOROETHANE	50.00	44.18	ug/l	88	73-120	
CHLOROFORM	50.00	48.43	ug/l	97	75-121	
CHLOROMETHANE	50.00	46.11	ug/l	92	60-122	
CIS-1,2-DICHLOROETHENE	50.00	46.51	ug/l	93	74-119	
CIS-1,3-DICHLOROPROPENE	50.00	51.69	ug/l	103	83-126	
CYCLOHEXANE	50.00	44.20	ug/l	88	60-123	
DIBROMOCHLOROMETHANE	50.00	49.51	ug/l	99	779-121	
DICHLORODIFLUOROMETHANE	50.00	41.91	ug/l	84	55-139	
ETHYLBENZENE	50,00	48.06	ug/l	96	70-130	
ISOPROPYL BENZENE	50.00	53.69	ug/l	107	74-113	
METHYL ACETATE	50.00	51.41	ug/l	103	67-123	
METHYL-TERT-BUTYL ETHER	50,00	49.34	ug/l	99	75-120	



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.07

Report Date : January 17, 2013

Page 17 of 18 Report ID: AL164

# QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63907

LCS

: LCS63907:1

Matrix

: GW/ChemW

Prep Method

	Spike	LCS		LCS	Limits
Parameter	Added	Conc	Units	%REC	%REC
METHYLCYCLOHEXANE	50.00	44.76	ug/l	90	62-123
METHYLENE CHLORIDE	50.00	46.55	ug/l	93	70-120
STYRENE	50.00	48.71	ug/l	97	78-113
TETRACHLOROETHENE	50.00	47.40	ug/l	95	70-120
TOLUENE	50.00	47.93	ug/l	96	75-116
TRANS-1,2-DICHLOROETHENE	50.00	45.02	ug/l	90	73-121
TRANS-1,3-DICHLOROPROPENE	50.00	46.52	ug/l	93	73-114
TRICHLOROETHENE	50.00	47,70	ug/l	95	75-119
TRICHLOROFLUOROMETHANE	50.00	49.13	ug/l	98	71-128
VINYL ACETATE	50.00	50.07	ug/l	100	65-142
VINYL CHLORIDE	50.00	43.32	ug/l	87	64-122
XYLENE (TOTAL)	150.0	155.2	ug/l	103	73-116



SC Certification Number: 24110001

Client : AECOM

1455 OLD ALABAMA RD.

SUITE 170

ROSWELL, GA 30076

Contact : BRYON DAHLGREN

Project Number: 61576.07

Report Date : January 17, 2013

Page 18 of 18 Report ID: AL164

# QC Batch Report - Laboratory Control Standards and Duplicates

WorkGroup: WG63907

LCS

: LCS63907:2

Matrix

: GW/ChemW

Prep Method

Parameter	Spike Added	000400000000000000000000000000000000000	Units	JCD	Limits %REC
CHLOROFORM	50.00	56.64	ug/l	113	75-121



#### **Explanation of Symbols and Abbreviations**

The following defines common symbols and abbreviations used in reporting technical data:

RDL	Report Detection Limit	MDL	Method Detection Limit
PQL	Practical Quantitation Limit	DL	Detection Limit
LOQ	Limit of Quantitation	LOD	Limit of Detection
SQL	Sample Quantitation Limit	TIC	Tentatively Identified Compound
С	Degrees Centigrade	F	Degrees Fahrenheit
umhos/cm	micromhos/cm	meq	milliequivalents

su Standard Units

mg/l, mg/kg Units of concentration in milligrams per liter for liquids and milligrams per kilogram for solids. Also

referred to as Parts Per Million or "ppm".

ug/l, ug/kg Units of concentration in micrograms per liter for liquids and micrograms per kilograms for solids.

Also referred to as Parts Per Billion or "ppb".

< Less Than
> Greater Than

Solid samples (i.e. soil, sludge, and solid waste) are reported on an as received basis unless otherwise noted.

#### Data Qualifiers:

- **B** Analyte also detected in the method blank.
- C Amendable Cyanide is a negative value due to an unknown interference.
- F Surrogate Standard Recovery exceeds the laboratory established acceptance limits.
- J The reported result is an estimated value (eg matrix interference observed or concentration outside the quantitation range.
- N Non-target analyte. The analyte is TIC (using mass spectrometry).
- P Concentration difference between primary and confirmation columns >40%.
- Q One or more quality control criteria failed (e.g., LCS recovery, surrogate spike recovery or CCV
- U Final concentration is below the detection limit.
- * Defined in report comments.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or biological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of the material involved, the test results will be meaningless. If you have any questions regarding the proper techniques of collecting samples, please contact us. However, we cannot be held responsible for sample integrity unless sampling has been performed by a member of our staff.

<u>REPRESENTATION AND LIMITATION OF LIABILITY</u> – The accuracy of all analytical results for samples begins as it is received by the laboratory. Integrity of the sample begins at the time it is placed in the possession of authorized Davis & Floyd, Inc. Laboratories personnel. All other warranties, expressed or implied, are disclaimed. Liability is limited to the cost of the analysis.



# Chain of Custody Record

		Chain	Chain of Custody Record	70	Page L of	-
Cient C.N.A. ,	Project / Site Location 061576.07 Auriga Polymers - Sptbg, SC	Laboratory Certification Numbers: SC-24110, N 816 E. Durst Avenue, Greenwood, SC 29649 Email: Laboratory@davisfloyd.com	SC-24110, NC-; rood, SC 29649 risfloyd.com	25, NELAP - E87633, TN - 2923, VA - 77 (864) 229-4413 Fax: (864) 229-7119 Internet: www.davisfloyd.com	Caboratory Work Request	1 THE PART OF THE
Contact	Report To Bryon Dahlgren		Reporting Requirements: M Standard [] Data Package (Specify Level: Tumanund Recuirements: [] Standard [] Dusch Schadin	a Package (Specify Level: 1 2	3 4) PO/Quote Number	70
Collected By	The state of the s		Required Parameters, Containers, and Preservatives (P)	servatives (P*)	Special Instructions	State
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		Circle: C or	F Ending Start Date:	to the state of th	On Ice: (Yes/ No Temp(C)	* ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (
Matrix Type Definitions 1 - Drinking Water	0 Water 2 - Clean Water 5 - Groundwater 7 - Coll Sedim	Schulo Chinoi L	Multiplier	Ilme to reach	Custody	

Matrix Type Definitions 1-Drinking Water 2-Clean Water 5-Groundwater 7-Soil/Sediment 8-Liquid Sludge 9-Oil 12-Air (P) Preservative Definitions A-None B-H2SO4 C-HCI D-HNO3 E-NaOH F-Filtered G-Na2S2O3

(Note 1) For Discharge Measurements

Davis & Floyd, Inc. FL02_03 (04/10)



2340 Stock Creek Blvd. Rockford TN 37853-3044 Phone: (865) 573-8188 Fax: (865) 573-8133 Email: info@microbe.com

Client: Bryon Dahlgren Phone:

**AECOM** 

1360 Peachtree Street

Suite 500

Atlanta, GA 30309 Fax:

Client Project #: 60242428.610 Client Project Name: Site Characterization/Auriga Spartanburg

Purchase Order #: 40523ACM

Analysis Requested: CENSUS

anta Biernacki

Reviewed By:

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

#### MICROBIAL INSIGHTS, INC.

2340 Stock Creek Blvd. Rockford, TN 37853-3044

Tel. (865) 573-8188 Fax. (865) 573-8133 **AECOM** 

MI Project Number: 017JI **CENSUS** 

Project: Site Characterization/Auriga Spartanburg, SC 09/13/2012 Date Received:

**Sample Information** 

Client:

Client Sample ID: D12-15-69.5 A D12-15-69.5 B D12-14-64 D12-11-40.5 D12-16-64 09/13/2012 09/11/2012 09/11/2012 09/12/2012 09/12/2012 Sample Date: cells/mL cells/mL cells/mL cells/mL cells/mL Units: Analyst: RWRW RWRW RW

**Dechlorinating Bacteria** 

Dehalobacter spp. DHBt <1.58E+01 <1.82E+01 <1.36E+01 <1.30E+01 <4.29E+01

Legend:

NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited

< = Result not detected

#### MICROBIAL INSIGHTS, INC.

2340 Stock Creek Blvd. Rockford, TN 37853-3044

Tel. (865) 573-8188 Fax. (865) 573-8133

Client:AECOMMI Project Number:017JIProject:Site Characterization/Auriga Spartanburg, SCDate Received:09/13/2012

**Sample Information** 

Client Sample ID: D12-5-25 D12-26-60 D12-24-54 D12-23-69 D12-9-47 09/20/2012 09/20/2012 09/17/2012 09/17/2012 09/20/2012 Sample Date: cells/mL cells/mL cells/mL cells/mL cells/mL Units: Analyst: RWRW RWRW RW

**CENSUS** 

**Dechlorinating Bacteria** 

Dehalobacter spp. DHBt <3.53E+01 <1.76E+01 <6.98E+01 <6.98E+01 **1.38E+02** 

Legend:

NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited

< = Result not detected



2340 Stock Creek Blvd. Rockford TN 37853-3044 Phone: (865) 573-8188 Fax: (865) 573-8133 Email: info@microbe.com

Client Project #: 60242428.610 Client Project Name: Site Characterization/Auriga Spartanburg

Purchase Order #: 40523ACM

Comments: Two 1 liter sample containers were both submitted to lab with the same sample name

listed as D12-15-69.5. Lab was informed by client to rename the more turbid orange hued

1 liter sample to D12-15-69.5 A and the other 1 liter sample to D12-15-69.5 B.



2340 Stock Creek Blvd. Rockford TN 37853-3044 Phone: (865) 573-8188 Fax: (865) 573-8133 Email: info@microbe.com

Client: Bryon Dahlgren Phone:

**AECOM** 

1360 Peachtree Street

Suite 500

Atlanta, GA 30309 Fax:

Client Project #: 60242428.610 Client Project Name: Site Characterization/Auriga Spartanburg

Purchase Order #: 40523ACM

Analysis Requested: CENSUS

anta Biernacki

Reviewed By:

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

#### MICROBIAL INSIGHTS, INC.

2340 Stock Creek Blvd. Rockford, TN 37853-3044

Tel. (865) 573-8188 Fax. (865) 573-8133 **AECOM** 

MI Project Number: 017JI **CENSUS** 

Project: Site Characterization/Auriga Spartanburg, SC 09/13/2012 Date Received:

**Sample Information** 

Client:

Client Sample ID: D12-15-69.5 A D12-15-69.5 B D12-14-64 D12-11-40.5 D12-16-64 09/13/2012 09/11/2012 09/11/2012 09/12/2012 09/12/2012 Sample Date: cells/mL cells/mL cells/mL cells/mL cells/mL Units: Analyst: RWRW RWRW RW

**Dechlorinating Bacteria** 

Dehalobacter spp. DHBt <1.58E+01 <1.82E+01 <1.36E+01 <1.30E+01 <4.29E+01

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#### MICROBIAL INSIGHTS, INC.

2340 Stock Creek Blvd. Rockford, TN 37853-3044

Tel. (865) 573-8188 Fax. (865) 573-8133

Client:AECOMMI Project Number:017JIProject:Site Characterization/Auriga Spartanburg, SCDate Received:09/13/2012

**Sample Information** 

Client Sample ID: D12-5-25 D12-26-60 D12-24-54 D12-23-69 D12-9-47 09/20/2012 09/20/2012 09/17/2012 09/17/2012 09/20/2012 Sample Date: cells/mL cells/mL cells/mL cells/mL cells/mL Units: Analyst: RWRW RWRW RW

**CENSUS** 

**Dechlorinating Bacteria** 

Dehalobacter spp. DHBt <3.53E+01 <1.76E+01 <6.98E+01 <6.98E+01 **1.38E+02** 

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Client Project #: 60242428.610 Client Project Name: Site Characterization/Auriga Spartanburg

Purchase Order #: 40523ACM

Comments: Two of the DHB samples shipped to Microbial Insights on 9-12-12 were inadvertently

labeled D12-15-69.5. Microbial Insights labeled the samples D12-15-69.5 A and

D12-15-69.5 B and noted that the A suffix sample was more turbid and orange than the B sample. One of these samples was actually from location D12-10-58.5 which was listed on the COC. Based on turbidity and color descriptions from Microbial Insights and Davis and Floyd on or about 9-13-12, the sample with the A suffix matches the sample collected

from D12-10-58.5.



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Client: Bryon Dahlgren Phone:

**AECOM** 

1360 Peachtree Street

Suite 500

Atlanta, GA 30309

Client Project #: 60242428.610 Client Project Name: Site Characterization/Auriga Spartanburg

Fax:

Purchase Order #: 40523ACM

Analysis Requested: CENSUS

ht Mis

#### Reviewed By:

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2340 Stock Creek Blvd. Rockford, TN 37853-3044

Tel. (865) 573-8188 Fax. (865) 573-8133 **AECOM** 

MI Project Number: 017JI 09/13/2012 Date Received:

**CENSUS** 

Project: Site Characterization/Auriga Spartanburg, SC

**Sample Information** 

Client:

Client Sample ID: D12-15-69.5 A D12-15-69.5 B D12-14-64 D12-11-40.5 D12-16-64 09/13/2012 09/11/2012 09/11/2012 09/12/2012 09/12/2012 Sample Date: cells/mL cells/mL cells/mL cells/mL cells/mL Units: Analyst: RWRW RWRW RW

**Dechlorinating Bacteria** 

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MI Project Number: 017JI

Project: Site Characterization/Auriga Spartanburg, SC

09/13/2012 Date Received:

**CENSUS** 

**Sample Information** 

Client:

Client Sample ID: D12-5-25 D12-26-60 D12-24-54 D12-23-69 D12-9-47 09/20/2012 09/20/2012 09/17/2012 09/17/2012 09/20/2012 Sample Date: cells/mL cells/mL cells/mL cells/mL cells/mL Units: Analyst: RWRW RWRW RW

**Dechlorinating Bacteria** 

Dehalobacter spp. DHBt <3.53E+01 <1.76E+01 <6.98E+01 <6.98E+01 1.38E+02

Legend:

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< = Result not detected

Sample ID: D12-27-61

Date	12-11-12						
Field Personnel	Mark Hartford		Rod Diameter		0.625		 inches
Site Name	Auriga Spartanburg		Rod Material		Steel		ft bgs
AECOM Job #	60280417		Screened Interval		57 -	61	 _ ft bgs
·					,		
Weather Conditions	Cloudy						
Air Temperature	<u> </u>	°F					
Total Depth (TD) =	55.8	ft bgs					
Depth to Ground Water (DGW) =		ft bgs		gill .			
Length of Water Column (LWC) = T	/	ft bgs					
1 Casing Volume (OCV)* = LWC x	60 = 312 m	nilliliters					
3 Casing Volumes =	milliliters			1645			
Sample Collection Method	Polyethylene Tubing and SS Check valve	•	Sample Time:	1 4 2 2			 
Sample Collection Equipment	Polyethylene Tubing and SS Check valve	,	Analysis: VOC	s and natural attenuation	parameters		
Total Volume of Water Removed	300 mil	lliliters					
* - Milliliters per foot factors for diam	neters: 0.5/39; 0.625/60; 0.75/87; 1/154; 2/618; 4/2	2471					
	300	1,71,00	FIELD ANALYSES				
VOLUME PURGED (milliliters)	Initial						
TIME (Military)	1690						
pH (S.U.)	6.08						
Sp. Cond. (mS/cm)	0.054						
Water Temp. (°C)	17.89						
ORP (mV)	-51.8						
DO - (mg/L)	2,57						
Turbidity (NTUs)	7/000						
	ORE						 
	Ø						
COMMENTS/OBSERVATIONS	Ferrous Iron - 0 : 52mg/L			1844			 ***************************************
	<u> Angering and a supplied and an annual suppl</u>	en managa na h					 

Sample ID: D12-27-75

Date	12-11-12									
Field Personnel	Mark Hartford			Rod Diameter			0.625		inche	∍s
Site Name	Auriga Spartanburg			Rod Material			Steel		ft bgs	s
AECOM Job #	60280417			Screened Interval			4-1	71-75	ft bgs	s
				-						
	<i>z</i> .									
Weather Conditions	the Clouddie									
Air Temperature 50			°F							
Total Depth (TD) =	75		ft bgs							
Depth to Ground Water (DGW) =	<u> 55.8</u>		ft bgs							
Length of Water Column (LWC) = TI			ft bgs							
1 Casing Volume (OCV)* = LWC x	60 = 115	<u></u>	illiliters							
3 Casing Volumes =	3456 milliliters				1255					
Sample Collection Method	Polyethylene Tubing and	SS Check valve		Sample Time:	123				 ***************************************	
Sample Collection Equipment	Polyethylene Tubing and	SS Check valve		Analysis: VOC	and natural atte	enuation parar	neters			
Total Volume of Water Removed	3800	mil	liliters							
* - Milliliters per foot factors for diam	eters: 0.5/39; 0.625/60; 0.75/87;	1/154; 2/618; 4/2	2471							
	1.201	2400	F	FIELD ANALYSES					 ***************************************	
VOLUME PURGED (milliliters)	Initial 1235	1240	3300							
TIME (Military)	1230 1237	1242	125	7						
pH (S.U.)	6.19 6.34	6.26	6.21							
Sp. Cond. (mS/cm)	0.1/2 0.120	0.119	0.118	<i>;</i>						
Water Temp. (°C)	19.38 21.11	20.65	20.5	3/						
ORP (mV) -52.7	2.77 -9.Z	7.5	8-1							$\neg$
DO - (mg/L)	2.77 4.65	4.02	4.08	<b>'</b>						
Turbidity (NTUs)	21000 700U	71000	7/00	A	•					
	0.34					2 C A	_		$s_i^{\gamma}$	
COMMENTS/OBSERVATIONS	Ferrous Iron - mg/L				K	2-fisel	C 75			
					4				 	·····
			**************************************						 Water Miles and Description of the Control of the C	<u> Addingson</u>

GW sample logs- AECOM

Sample ID: D12- 28 - 66

Date 17	2/16/12						
Field Personnel	Mark Hartford		Rod Diameter		0.625		inches
Site Name	Auriga Spartanburg		Rod Material	The state of the s	Steel		ft bgs
AECOM Job #	60280417		Screened Interval		62-1	66	ft bgs
Weather Conditions  Air Temperature  Total Depth (TD) =  Depth to Ground Water (DGW) =  Length of Water Column (LWC) = 1  1 Casing Volume (OCV)* = LWC x  3 Casing Volumes =  Sample Collection Method  Sample Collection Equipment  Total Volume of Water Removed	Cloudy (56) 66 67-5-59.8 10-DGW = 6.2 60 = 372	alve milliliters	Sample Time:	930 and natural atte	enuation parameters		ft bgs
			TELD ANALYSES	· · · · · · · · · · · · · · · · · · ·			
VOLUME PURGED (milliliters)	Initial 550 1000						
TIME (Military)	915 918 921	97.5					
pH (S.U.)	6.01 6.07 5.98	1 5,9	,				
Sp. Cond. (mS/cm)	0.154 0.079 0.075		7				
Water Temp. (°C)	15.76 17.53 18.96	18.9					
ORP (mV)	27.4 25.5 26.9	28.2	1				
DO - (mg/L)	2.03 2.19 2.15	2.19					
Turbidity (NTUs)	71600 71000 71000	>1000					
						J	
COMMENTS/OBSERVATIONS	Ferrous Iron -2 - 17 mg/L						

Sample ID: D12-28- 37

Date	12/10/12				× .	
Field Personnel	Mark Hartford	Rod Diameter		0.625		inches
Site Name	Auriga Spartanburg	Rod Material		Steel		ft bgs
AECOM Job #	60280417	Screened Interval		83 -8	*7	ft bgs
		1				
Weather Conditions	loads	] ]				
Air Temperature	°F					
Total Depth (TD) =	§7 ft bgs					Ì
Depth to Ground Water (DGW) =	ft bgs					
Length of Water Column (LWC) = ⁻	A					
1 Casing Volume (OCV)* = LWC x	60 = 1530 milliliters					
3 Casing Volumes =	milliliters					
Sample Collection Method	Polyethylene Tubing and SS Check valve	Sample Time:	1205			
Sample Collection Equipment	Polyethylene Tubing and SS Check valve	Analysis: VOC	s and natural atten	uation parameters		
Total Volume of Water Removed	4500 milliliters					
* - Milliliters per foot factors for diar	meters: 0.5/39; 0.625/60; 0.75/87; 1/154; 2/618; 4/2471					
		FIELD ANALYSES				
VOLUME PURGED (milliliters)	Initial 1500 3000 45					
TIME (Military)	1145 1150 1155 120					
pH (S.U.)	6.48 6.59 6.54 6.5	7				
Sp. Cond. (mS/cm)	0.164 0.189 0.114 0.11	1				
Water Temp. (°C)	20.48 20.35 20.27 20.	25				
ORP (mV)	-387.9 -183.2 -89.2 -91	(1				
DO - (mg/L)	0.88 1.25 2.39 2.3					
Turbidity (NTUs)	71000 71000 71000 7100					
					-	
	- 611					
COMMENTS/OBSERVATIONS	Ferrous Iron - 2 · 8 9 mg/L		Reti	sol at 87 ft		
				•		

Sample ID: D12- 29-41

Date	12-12-12		
Field Personnel	Mark Hartford	Rod Diameter	0.625 inches
Site Name	Auriga Spartanburg	Rod Material	Steel ft bgs
AECOM Job#	60280417	Screened Interval	37 - 41 ft bgs
Weather Conditions  Air Temperature  Total Depth (TD) =  Depth to Ground Water (DGW) =  Length of Water Column (LWC) = T  1 Casing Volume (OCV)* = LWC x  3 Casing Volumes =  Sample Collection Method	n.zz 6  45  47  ft bgs  ft bgs  ft bgs  ft bgs  ft bgs  milliliters  Polyethylene Tubing and SS Check valve	Sample Time:	1440 Dup 2 ms mg D
Sample Collection Equipment	Polyethylene Tubing and SS Check valve	Analysis: VOCs	s and natural attenuation parameters
Total Volume of Water Removed	milliliters		
* - Milliliters per foot factors for diam	neters: 0.5/39; 0.625/60; 0.75/87; 1/154; 2/618; 4/2471	FIELD ANALYSES	
VOLUME PURGED (milliliters)	Initial 1000 2000 30	7 CN	
TIME (Military)		3 5	
pH (S.U.)		37	
Sp. Cond. (mS/cm)	0.052 0.044 0.075 0.0		
Water Temp. (°C)		50	
ORP (mV)	64.4 81.1 90.7 91.		
DO - (mg/L)	2.95 4.36 4.30 4.3		
Turbidity (NTUs)	7/000 7/000 7/000 7/0	<i>y</i> 1	
COMMENTS/OBSERVATIONS	Ferrous Iron - 0. 47 mg/L		

Sample ID: D12- 29 - 50

Date	12-12-12		Ī							
Field Personnel	Mark Hartford			Rod Diameter			. 0.625			inches
Site Name	Auriga Spartanburg			Rod Material			Steel			ft bgs
AECOM Job #	60280417			Screened Interval			46 - 50	è		ft bgs
Weather Conditions	Clouds									
Air Temperature	45		° E							
Total Depth (TD) =	50		t bgs							
Depth to Ground Water (DGW) =	36.0		t bgs							
Length of Water Column (LWC) = T			t bgs							
1 Casing Volume (OCV)* = LWC x			iliters							
3 Casing Volumes = 25	20 milliliter									
Sample Collection Method	Polyethylene Tubing a	,		Sample Time:	1130					
				1						
Sample Collection Equipment	Polyethylene Tubing a			Analysis: VOC	s and natural a	attenuation par	rameters		- <u> </u>	
Total Volume of Water Removed		millil					WI			
* - Milliliters per foot factors for diam	eters: 0.5/39; 0.625/60; 0.75/8	7; 1/154; 2/618; 4/24	71							
				FIELD ANALYSES						
VOLUME PURGED (milliliters)	Initial 1500	3000	450							
TIME (Military)	1110 1115	1120	112							
pH (S.U.)	5.67 5.73		5.69							
Sp. Cond. (mS/cm)	0.09 0.082		0.0							
Water Temp. (°C)	18.10 18.43	17.65	17.6							
ORP (mV)	14.2 11.2	12.3	14.							
DO - (mg/L)	1.61 2.77	2.91	20							
Turbidity (NTUs)	7/0012 1000	21000	7/00	¥						
	113									
COMMENTS/OBSERVATIONS	Ferrous Iron - / 63 mg/L									
		NAMES OF THE OWNER, WAS ASSESSED.	****	ph		and the second s	and the second s		Billion and Alexander States and Alexander	

Sample ID: D12-30 -20

Date	12-13-12						
Field Personnel	Mark Hartford		Rod Diameter		0.625		inches
Site Name	Auriga Spartanburg		Rod Material		Steel	***************************************	 ft bgs
AECOM Job #	60280417		Screened Interval		16 -	20	 - ft bgs
			Octooried interval				 - " bys
Weather Conditions	Po-14 Clunds						
Air Temperature	35	°F					
Total Depth (TD) =	20	ft bgs					
Depth to Ground Water (DGW) =	15911.9	ft bgs					
Length of Water Column (LWC) = T	D-DGW = 4.						
1 Casing Volume (OCV)* = LWC x	2260 = 276	786 milliliters					
3 Casing Volumes =	1458 milliliters			- 5			
Sample Collection Method	Polyethylene Tubing and S	S Check valve	Sample Time:	1020			
Sample Collection Equipment	Polyethylene Tubing and S	S Check valve	Analysis: VOCs	s and natural atte	enuation parameters		
Total Volume of Water Removed		milliliters					
* - Milliliters per foot factors for diam	neters: 0.5/39; 0.625/60; 0.75/87; 1/	154; 2/618; 4/2471					 
	e.	्वै					
	V.		FIELD ANALYSES				
VOLUME PURGED (milliliters)	Initial 500	1000 150	加				
TIME (Military)	1010 1012	1015	400				
pH (S.U.)	6.35 6.36	6-31					
Sp. Cond. (mS/cm)	0-16/ 0.106	0.094					 
Water Temp. (°C)	14.04 15.89	1526					
ORP (mV)	-6.7 3.4	26.4					
DO - (mg/L)	2.00 2.57	2.5					
Turbidity (NTUs)	71000 71666	692 7/00	Ú				
		04					
	Ferrous Iron - 0.62 mg/l						 
COMMENTS/OBSERVATIONS	Ferrous Iron - mg/L			A-1447			 
	W. C.			·		·	 

Sample ID: D12- 36 - 5つ

Date 1	2-12-12-12-					
Field Personnel	Mark Hartford	Rod Diameter		0.625		inches
Site Name	Auriga Spartanburg	Rod Material		Steel		
AECOM Job #	60280417	Screened Interval		46 - 50		
Weather Conditions  Air Temperature  Total Depth (TD) =  Depth to Ground Water (DGW) =  Length of Water Column (LWC) = T  1 Casing Volume (OCV)* = LWC x  3 Casing Volumes =	Ctouty Partly Cloudy  45 35  50  15.9  10-DGW = 34.1  60  = 2046  millilite	° F gs gs gs gs ers  Sample Time: Analysis: VOCs	935 s and natural attenuatio			ft bgs
FIELD ANALYSES						
VOLUME PURGED (milliliters)	Initial 2100	TIELD AWALTOLO	T.			
TIME (Military)	915 920					
pH (S.U.)	6.72 6.85					
Sp. Cond. (mS/cm)	0.156 0.153					
Water Temp. (°C)	1473 14.34					
ORP (mV)	-85.8 -42.0					
DO - (mg/L)	3.71 4.42					
Turbidity (NTUs)	71000 71684					
	0-5-					
COMMENTS/OBSERVATIONS	Ferrous Iron - 1.16 mg/L					